14:24:39 OCA PAD AMENDMENT - PROJECT HEADER INFORMATION 01/10/96

Active

Project #: E-19-684 Cost share #: Rev #: 11
Center # : R6223-0A0 Center shr #: OCA file #:
Work type : RES
Contract#: DE-FG09-86SR15156 Mod #: 007 Document : GRANT
Prime #: Contract entity: GTRC

Subprojects ? : N CFDA:
Main project #: PE #:

Project unit: CHEM ENGR Unit code: 02.010.114
Project director(s):
TEDDER D W CHEM ENGR (404)894-2856

Sponsor/division names: US DEPT OF ENERGY / DOE WASHINGTON, DC
Sponsor/division codes: 141 / 002

Award period: 860930 to 950930 (performance) 951231 (reports)

Sponsor amount	New this change	Total to date
Contract value	0.00	50,000.00
Funded	0.00	50,000.00
Cost sharing amount		0.00

Does subcontracting plan apply ?: N

Title: DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

PROJECT ADMINISTRATION DATA

OCA contact: E. Faith Gleason 894-4820

Sponsor technical contact

JOHN GEIGER, PROJECT OFFICER
(803)725-3909

WASTE PROCESSING FACILITY, U.S. DOE
SAVANNAH RIVER OPERATIONS OFFICE
P.O. BOX A,
AIKEN, SOUTH CAROLINA 29802

Sponsor issuing office

ELIZABETH MARTIN,
(803)725-2191

MANAGEMENT BRANCH, C&S DIV. U.S. DOE
SAVANNAH RIVER OPERATIONS OFFICE
P.O. BOX A,
AIKEN, SOUTH CAROLINA 29802

Security class (U,C,S,TS) : U ONR resident rep. is ACO (Y/N): N
Defense priority rating : N/A supplemental sheet
Equipment title vests with: Sponsor GIT X
PRIOR APPROVAL REQUIRED TO PURCHASE OVER $500, OR OVER $1000 SPECIAL PURPOSE
Administrative comments -
MODIFICATION 7 REVISES REPORTING REQUIREMENTS.

GEORGIA INSTITUTE OF TECHNOLOGY
OFFICE OF CONTRACT ADMINISTRATION

NOTICE OF PROJECT CLOSEOUT

Closeout Notice Date 03/20/96

Project No. E-19-684_____ Center No. R6223-0A0_____

Project Director TEDDER D W_____ School/Lab CHEM ENGR_____

Sponsor US DEPT OF ENERGY/DOE WASHINGTON, DC_____

Contract/Grant No. DE-FG09-86SR15156_____ Contract Entity GTRC

Prime Contract No. _____

Title DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY_____

Effective Completion Date 950930 (Performance) 951231 (Reports)

Closeout Actions Required:	Y/N	Date Submitted
Final Invoice or Copy of Final Invoice	Y	960302
Final Report of Inventions and/or Subcontracts	Y	_____
Government Property Inventory & Related Certificate	Y	_____
Classified Material Certificate	N	_____
Release and Assignment	N	_____
Other _____	N	_____

Comments_____

_____

Subproject Under Main Project No. _____

Continues Project No. _____

Distribution Required:

Project Director	Y
Administrative Network Representative	Y
GTRI Accounting/Grants and Contracts	Y
Procurement/Supply Services	Y
Research Property Managment	Y
Research Security Services	N
Reports Coordinator (OCA)	Y
GTRC	Y
Project File	Y
Other _____	N
_____	N

NOTE: Final Patent Questionnaire sent to PDPI.

E-19-684

142

FORM DOE E38
(Rev. 10-80)

U.S. DEPARTMENT OF ENERGY

NOTICE OF ENERGY RD&D PROJECT

APPROVED FOR USE BY
SMITHSONIAN SCIENCE INFORMATION EXCHANGE

FORM APPROVED
OMB NO. 38 R-0190

1. Descriptive title of work
Documentation of Nuclear Waste Management Technology

2. Performing organization control number E-19-684
Work status ☐ New ☐ Continuing ☐ Terminated

3. Contract or grant number
DE-FG09-86SR15156

4. Contractor's principal investigator/project manager and address where work is performed

A. Name (Last, First, MI) Tedder, Daniel W. B. Phone: FTS-

C. Research organization business address: Street Georgia Institute of Technology Chemical Engineering Com.- (404)894-2856

City Atlanta State GA Zip 30332-0100

5. A. Name of performing organization Georgia Tech Research Corp. (Organization) Chemical Engineering (Department)

B. Mailing address (If different from 4C)

C. Circle only one code for TYPE OF ORGANIZATION PERFORMING R&D (See instructions):
(CU) FF IN NP ST TA US XX EG

D. Location where the work is being performed

E. Country sponsoring research

6. Supporting organization

A. Program division or office (Full name) U.S. Department of Energy, Savannah River Operations Office

B. Technical monitor (Last, First, MI) Geiger, John C. Phone: FTS-

D. Address (If different from DOE Hqs.) U.S. DOE, SRO, P.O. Box A, Aiken, SC 29802 Com.(803) 725-3909

E. Administrative monitor (Last, First, MI) Simpson, Ronald D.

7. Project schedule

A. Start date September (Month) 1986 (Year) B. Expected completion date September (Month) 1987 (Year)

8. Funding in thousands of dollars (Funds represent budget obligations for operating and capital equipment)

	Funding organization(s)	Current FY 87	Next FY
A.	U.S. Department of Energy, SRO	50.000	
B.			
C.			

D. For DOE projects, enter budgeting and reporting classification code AR0515120

E. Interagency agreement (Specify funding agency)

F. Agency in-house effort (Check if applicable) ☐

G. EPA "pass-thru" funding (Check if applicable) ☐

Note: Funding Section utilization is optional on Federal Financial Assistance Programs: grants, direct payments, cooperative agreements, loan guarantees, and other related programs.

9. Descriptive summary of work (Limit to 200 words. Include objective, approach, results to date and their significance, and expected product. Quantify where possible).

The technology of nuclear waste management will be documented through a multivolume series published by Harwood Academic Publishers in New York. This series will provide comprehensive coverage from waste generation, through waste handling, to the issues which result from the interactions within complex waste management systems. This work will provide waste management information in a coherent reference format which is not currently available. Manuscripts for five volumes are now being drafted. Volume editors have been selected for fourteen volumes. Working outlines are available for six volumes.

10. List the five most descriptive publications in the last year that are available to the public which have resulted from the project (Please give a complete bibliographic citation. Use additional sheets if necessary).

Not Applicable

11. General technology categories (Enter applicable code of codes from instructions).

B 1 | F 1 | F 5 | | | | | | | | | | |

F5 = Engineering Technology

12. Type of research activity (Check applicable activities)

- A. [ ] Basic research
- B. [ ] Applied research
- C. [ ] Laboratory scale R&D
- D. [ ] Technology development
- E. [ ] Field study
- F. [ ] Pilot plant scale R&D
- G. [ ] Full scale demonstration
- H. [ ] Mathematical model development
- I. [ ] Data analysis/assessments
- J. [ ] Information systems management
- K. [ ] Policy analysis
- L. [ ] Socioeconomic
- M. [ ] Other (Specify)_____
- N. [X] Not applicable

13. keywords (Please list 5 keywords).

Nuclear, Waste, Technology, Management, Design

14. Is this research project solely an ANALYTICAL/PAPER STUDY?
(Non-experimental, paper and pencil, computer analysis, etc.). YES X NO _____

15. Respondent's Name: Tedder, Daniel W. Phone No.: (404)894-2856 Date: 1/6/87

Street: Georgia Institute of Technology
Chemical Engineering

City: Atlanta State: GA Zip: 30332-0100

☆U.S. G.P.O. 1980-720-050/4616

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period September 1, 1986 thru December 31, 1986

DE-FG09-86SR15156

E-19-684

January 5, 1987

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. This table can be used with the current list of volume titles to determine the status of each volume. Major milestones for each volume are indicated on the Status Summary Table.

As is clear from the Status Summary Table, all but one of the volume editors have been selected. At discussions with our publisher (Harwood Academic) in New York, it was decided that a Volume Editor for the remaining Volume 14 would also be selected in the near future. Originally, it was intended that Volume 14 would be prepared in light of information provided by the other volumes in the series, but this approach has been abandoned in order to expedite completion of the series.

Fewer volumes have completed outlines. In the case of Volume 3, this situation is due to a recent consolidation of Volumes 3 and 8. Volume 8 has been deleted. The new editor is expected to move ahead quickly.

Similarly, for Volumes 13, 15, and 16, the editors have had less than six months to complete and return an outline. They are being contacted periodically to remind them to move ahead.

In the cases of Volumes 4, 5, 7, and 12, the lack of an approved outline may indicate the need to select a new Volume Editor. The Series Editors are currently reviewing the situation on a case by case basis.

Manuscripts for the remaining volumes have been started. For

Volumes 1, 2, 6, 10, and 11, estimated completion times are shown. For the remaining volumes, it is not possible to estimate completion times yet. One chapter of Volume 15 is complete since it was transferred from Volume 10. The remaining authors for Volume 15 have not yet been selected.

Based on the Status Summary Table, we hope to have at least five manuscripts available for review in June 1986. The Volume 10 manuscript was originally anticipated in June 1986, but has been held up due to one author who has not found time to complete his chapter. Hopefully, this author will complete his section over Christmas and thus make the volume manuscript available by January 1986.

Manuscript review and revisions are estimated to require at least four months in the Status Summary Table. This estimate is probably optimistic for most of the volumes. Since the publisher estimates five to eight months to publish the volume from the time the final, reviewed manuscript is received, it seems unlikely that any volumes will be in print before CY 1988.

The Series Editors will welcome any suggestions as to how the contributors may be motivated to complete their sections.

GOALS FOR NEXT QUARTER

Workshops are planned for March 2 and 3, 1987 in Tucson at Waste Management 87. These workshops have been highly productive in the past. A flyer will be sent to all participants as soon as the WM 87 organizers determine where the workshop will meet.

We hope to begin a formal review of the manuscript for Volume 10 in February. We also hope to receive and approve outlines and a list of authors for the remaining volumes during this period. If this goal is accomplished, then it will help to ensure that all manuscripts are started by the end of next quarter.

Distribution: J. O. Blomeke, ORNL
J. Geiger, SRO
P. McGreevy, HAP
R. W. Rousseau, GIT
A. L. Taboas, DOE
U.S. DOE, CSD, SRO (2 copies)

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY
STATUS SUMMARY TABLE
January 5, 1987

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Written	Draft Available	Review Completed
1	Yes	Yes	Yes	2Ø	Jun-87	Oct-87
2	Yes	Yes	Yes	6Ø	Jun-87	Oct-87
3	Yes	No	No	Ø		
4	Yes	No	No	Ø		
5	Yes	No	No	Ø		
6	Yes	Yes	Yes	2Ø	Jun-87	Oct-87
7	Yes	No	No	Ø		
9	Yes	Yes	Yes	1Ø		
1Ø	Yes	Yes	Yes	9Ø	Jan-87	Apr-87
11	Yes	Yes	Yes	4Ø	Jun-87	Oct-87
12	Yes	No	No	Ø		
13	Yes	No	No	Ø		
14	No	No	No	Ø		
15	Yes	No	No	1Ø		
16	Yes	No	No	Ø		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

CURRENT VOLUME TITLES

January 5, 1987

The series is organized into three major catagories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Fuel Preparation and Reactor Operations

2. Isotopic Products Recovery and Usage

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Interim Storage and Source Management

4. Volume Reduction and Concentration

5. Solidification

6. Decontamination and Decommissioning

7. Assay, Classification, and Effluent Monitoring

9. Treatment of Airborne Wastes

10. Shallow Land Disposal

11. Geological Repository Design

15. Sea Disposal

16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental, Financial, and Institutional Impacts

E-19-684

#3

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period January 1, 1987 thru March 31, 1987

DE-FG09-86SR15156

E-19-684

April 22, 1987

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

The following enclosures are attached to this report: (1) a current list of volume titles, editors, and authors; (2) a current status summary table; and (3) a compilation of the working volume outlines.

CURRENT STATUS

The current status of all volumes is summarized in the attached status summary table. Major milestones for each volume are as indicated.

Significant progress was made on the series during this past quarter. Our current efforts are focused on those volumes where the least progress has been made.

Workshops were held at Waste Management '87 in Tucson, Arizona on March 2nd and 3rd. The status of each volume was reviewed. A composite outline of the entire series was presented. An update of the composite outline is attached to this report.

Draft manuscripts for six volumes are expected for review in the immediate future. One is expected in May, three have been promised by July, a fifth volume is due in May, and a sixth in August.

Volume editors are in place for all volumes except one. Volume outlines have been drafted for all volumes except four. Authors have been selected for all volumes except eight. Writing has been initiated for all volumes except

six. The individual volume percentages drafted range from 0% to 90%. An average of 20% of the series volumes have been drafted. The status summary table indicates the volume by volume progress.

GOALS FOR NEXT QUARTER

We hope to have all volume editors selected by the end of the next quarter and also to have working outlines for all volumes. If the draft manuscript for Volume 10 is received as scheduled, we plan to have its review completed by September.

Distribution: J. O. Blomeke, ORNL
J. Geiger, SRO
P. McGreevy, HAP
R. W. Rousseau, GIT
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

NUCLEAR WASTE MANAGEMENT TECHNOLOGY SERIES

EDITOR
D. WILLIAM TEDDER
SCHOOL OF CHEMICAL ENGINEERING
GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332-0100 USA
TELEPHONE: (1-404) 894-2856
TELEX: 542507 GTRI OCA ATL

EDITOR
J. O. BLOMEKE
OAK RIDGE NATIONAL LABORATORY
POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37831 USA
TELEPHONE: (1-615) 574-7126
TELEX: 810 572 1076 USDOE OKRE

harwood academic publishers

chur
london
paris
new york

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

April 22, 1987
Series Editors

D. W. Tedder and J. O. Blomeke

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations

   Vol Ed: Mary White, ALO
   Contributors: L. Ball, DOE; L. E. Bruns, RHO; M. H. Campbell, RHO; W. Chenoweth, DOE; E. W. Gerber, Westinghouse Hanford Co.; R. E. Gray, DOE; D. E. Large, ORO; C. Monte, ALO; W. W. Schulz, RHO; R. K. Welty, RHO.

2. Isotopic Products Recovery and Usage

   Vol Eds: W. W. Schulz, RHO and R. M. Wallace, SRL
   Contributors: M. H. Campbell, RHO; D. C. Christensen, LANL; E. D. Collins, ORNL; R. K. Welty, RHO; K. A. Gasper, RHO

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Interim Storage, and Source Management

   Vol Ed: B. Nair, Westinghouse Electric Corp.
   Contributors:

4. Volume Reduction and Concentration

   Vol Ed: M. Thomas, Black & Veatch and D. W. Tedder, GIT
   Contributors:

5. Solidification

   Vol Ed: J. L. Crandall, SRL
   Contributors:

6. Decontamination and Decommissioning

Vol Eds: W. J. Manion and J. R. May, Nuclear Energy Services
Contributors: S. K. Menon, Studsvik Energiteknik AB; R. I. Smith, PNL; F. H. Passant, Central Electric Generating Board, UK; L. D. Perrigo, PNL; R. Shaw, EPRI; R. J. Stouky, Power Cutting Inc., IL;.

7. Assay, Classification, and Effluent Monitoring

Vol Ed: John Caldwell, LANL
Contributors:

9. Treatment of Airborne Wastes

Vol Ed: W. R. A. Goossens, C.E.N./S.C.K., Mol, Belgium
Contributors: R. W. Benjamin, E. I. DuPont; L. L. Burger, PNL; G. Collard, S.C.K./C.E.N.; R. M. Counce, UT/ORNL; Prof. First, Harvard, PHD; L. Greens, S.C.K./C.E.N; R. Glibert, Belgonucleaire; G. L. Haag, Amoco Production Co.; D. C. Hampson, ORNL; G. Van Hellemont, Belgonucleaire; R. T. Jubin, ORNL; M. Klein, S.C.K./C.E.N.; L. Kovach, Nuclear Consulting Services; L. Weissenburger, KfK-INE/GmbH; J. G. Wilhelm, KfK-INE/GmbH;

10. Shallow Land Disposal

Vol Ed: J. H. Kittel, ANL
Contributors: K. Cartwright, Ill Geo. Survey; R. Gaynor, U.S. Ecology; D. Ebenhack, Chem-Nuclear Systems; P. G. Tucker, U.S. Corps of Engineers; B. P. Spalding, ORNL; L. E. Trevorrow, ANL; N. W. Golchert, ANL; P. F. Gustafson, ANL; T. L. Gilbert, ANL;

11. Repository Siting and Design

Vol Eds: H. Babad, RHO and J. W. Bartlett, TASC
Contributors: Z. T. Bieniawski, Penn State; A. Capozzi, Stone and Webster; J. A. Carr, Battelle, ONWI; P. Comella, R. F. Weston, Inc; K. R. Fecht, RHO; R. E. Gephart, RHO; J. Lieberman, Otha Inc.; H. Schilling, PNL; B. Schmidt, Parsons Brinkerhoff; H. W. Smedes, Cons.; B. Smith, ICF Tech.; C. M. St John, J. F. T. Agapito Ass.; T. Steinborn, PNL; K. Tominey, RHO; J. E. Voss, Golder Ass.

15. Sea Disposal

Vol Ed: Dr. D. R. Anderson, SAND
Contributors: J. B. Lewis, AERE Harwell

16. Incineration

Vol Ed: Dr. Leon Borduin, LANL
Contributors:

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design

Vol Ed: A. K. Williams, Bechtel, Inc.
Contributors:

13. Systems Analyses, Forecasting, and Data Reduction

Vol Ed: E. R. Johnson, E. R. Johnson Assoc, Inc.
Contributors: E. R. Johnson; T. Wood, E. R. Johnson, Ass.; J. A. McBride, E. R. Johnson, Ass.

14. Environmental Modeling

Vol Ed:
Contributors:

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

D. W. Tedder and J. O. Blomeke

Series Editors

22-Apr-87

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	40%	Aug-87	Dec-87
2	Yes	Yes	Yes	60%	Jun-87	Oct-87
3	Yes	Yes	No	0%		
4	Yes	Yes	No	5%		
5	Yes	Yes	No	5%		
6	Yes	Yes	Yes	20%	Jun-87	Oct-87
7	Yes	No	No	0%		
9	Yes	Yes	Yes	30%		
10	Yes	Yes	Yes	90%	May-87	Sep-87
11	Yes	Yes	Yes	10%	Jun-87	Oct-87
12	Yes	No	No	0%		
13	Yes	Yes	Yes	10%	Jul-87	Nov-87
14	No	No	No	0%		
15	Yes	No	No	10%		
16	Yes	Yes	No	0%		
Average Percentage of Series Drafted:				19%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NWMTS VOLUME OUTLINES, April 21, 1987

NUCLEAR WASTE MANAGEMENT TECHNOLOGY SERIES

April 21, 1987

1. URANIUM EXPLORATION, MINING, MILLING, FUEL PREPARATION AND REACTOR OPERATIONS

- Uranium Exploration Technology and Development
  - Introduction
  - Exploration Technology 1950 - 1970
  - R & D Requirements and Priorities
  - Aerial Surveying
  - Surface Exploration Techniques
  - Subsurface Methods
  - Technology Integration
  - Calibration Facilities
  - Laboratory Support
  - Spin-Off Capabilities
- Exploration
  - Geologic Settings of Uranium Deposits
  - Exploration Techniques
  - General Production History
  - Regional Exploration Histories
  - Summary
- Milling, Purification of Uranium and Thorium Ores
  - Mechanical Enrichment
  - Chemical Purification
    - Liquid Waste Supernates
    - Liquid/Liquid Extraction
    - Ion Exchange Liquids
    - Solid Wastes
- Management of Uranium and Thorium Mining Wastes
  - Survey of Waste Characteristics
    - Sources
    - The U.S. Problem in Perspective
    - Physico-Chemical Characteristics of Wastes
  - Distribution and Dissemination of Wastes
    - Geographical Distribution
    - Environmental Transport, Fate and Effects
  - Remediation and Reclamation of Wastes
    - Need
    - Programs for Remediation
  - Implications for the Future
- Nuclear Fuel Fabrication Operations
  - Introduction
    - Generic Waste Sources
    - Current Practices
    - Distribution of Wastes
  - UF_6 Conversion Wastes: USA Practices
    - Wet Conversion
    - Dry Conversion
  - UF_6 Conversion Wastes: European Practices
    - Wet Conversion
    - Dry Conversion
  - Scrap Recovery Operations
    - Ion Exchange Processes

- Ion Exchange Resin Wastes
- Offgas and Offgas Treatment Wastes
  - HEPA Filters
  - Gaseous Discharges
- Other Solid Wastes
  - Grinder Sludges
  - Floor and Hood Sweepings
  - General Trash
- Liquid Waste Handling
  - Solidification
  - Storage Lagoons
- Solid Waste Handling
  - Storage
  - Barrel Assay
  - Barrel Disposal
  - Typical Waste Volumes Generated

Some Criticality Aspects of Waste Management

Breeder Reactor Fuel Fabrication

- Introduction
- Breeder Fuel Cycle
- Pellet Oxide Process
- Metal Fuel Processes
- Advanced Processes
- Advanced Reactors

Reactor Operations

- Fuel Loading
- Reactor Operations
  - Cooling Water Clean-up
  - Ion Exchange Operations
  - Waste Stabilization
- Fuel Unloading
  - Routine Operations
  - Ruptured Fuel Rods
- Fuel Storage
  - Cooling Water Clean-up
  - Ion Exchange Operations
  - Miscellaneous Operations

2. ISOTOPIC PRODUCTS RECOVERY AND USAGE

Wastes from Fuel Processing Operations

- Normal Purex
- Modified Purex

By-Product Recovery from High-Level Wastes

Recovery of Selected Elements from Irradiated Targets

Isotope Usage

- Plutonium Heat Sources, Medical Production
- Neptunium and Americium Production
- Neptunium and Americium Irradiation to produce Pu
- Heat Sources from Purex
- Heat Source Preparation
- Heat Source Usage
- Plutonium Wastes
  - Supernates
  - Solvents
  - Ion Exchange
  - Other Liquid Wastes

Retired Heat Sources (Capsule Disposal)

3. PACKAGING, TRANSPORTATION, STORAGE, AND SOURCE MANAGEMENT

Introduction
Regulatory Requirements and Institutional Issues
- Regulations: Present and Future
- State and Local Intervention

Low Level Wastes
- General Description
- Present Packaging Technologies and Methods
- Future Needs and Technology Requirements
- Cost Estimation

High Level Wastes
- General Description
- Present Packaging Technologies and Methods
- Future Needs and Technology Requirements
- Cost Estimation

Spent Fuel
- General Description
- Present Packaging Technologies and Methods
- Future Needs and Technology Requirements
- Cost Estimation

Transuranic Wastes
- General Description
- Present Packaging Technologies and Methods
- Future Needs and Technology Requirements
- Cost Estimation

Transportation Alternatives
- Highway
- Rail
- Barge
- Intermodal Transfers
- Cost Estimation

Transportation Casks
- Design and Construction
- Testing Methods
- Advanced Concepts
- Future Needs and Technology Requirements
- Life Cycle Costs

Transportation Risks
- Highway
- Rail
- Barge
- Monitored Retrievable Storage Impacts

Design of High-Level Waste Storage Systems
- Alkaline Liquids
- Acidic Liquids
- Calcines
- Glasses
- Future Needs and Technolgy Requirements
- Cost Estimation

Design of Spent-Fuel Storage Systems
- Water Basins
- Seabed Storage Casks

- Field Dry Wells
- Air-Cooled Vaults
- Future Needs and Technology Requirements
- Cost Estimation

Design of Radioactive Source Management Systems
- Medical
- Industrial
- Other Sources

Criticality Control During Transportation and Storage
- Spent Fuel
- High-Level Liquid Wastes
- High-Level Solid Wastes

Appendices

4. VOLUME REDUCTION AND CONCENTRATION

Introduction

Filtration
- Ultrafiltration
- Hyperfiltration
- Reverse Osmosis

Centrifugation and Cyclone Separators

Evaporation and Distillation

Ion Exchange

Leaching and Extraction

Precipitation, Flocculation, and Flotation

Compaction

Crystallization

Other Concentration Processes

5. SOLIDIFICATION AND ENCAPSULATION

Introduction
- Role of Solidification
- Solidification Requirements
- Regulatory Requirements

Summary
- Waste Form Selection Factors
- Waste Form Summary
- Waste Forms in General Use

Waste Characteristics for Solidification
- Air Borne Wastes
- Low Level Wastes
- Transuranic Wastes
- High Level Wastes
- Partially Processed Waste Solids

Organic Waste Forms
- Bitumens
- Polymers

Cement Waste Forms
- Conventional Aluminosilicates
- Dewatered Aluminosilicates
- Unconventional Cements

Mineral and Ceramic Waste Forms
- Mineral Systems
- Mineralized Waste Systems
- Properties of Mineral and Ceramic Systems

- Formation of Crystalline Wastes
- Tailored Ceramics, Supercalcines
- Synrock
- Monazites
- Other

Glass Waste Forms
- Borosilicate Glasses
- High Silica Glasses
- Devitrified Silicate Glasses
- Phosphate Glasses
- Basalt and In Situ Glasses

Coated Particle Waste Forms
- Solgel Based Particles
- Preformed Glass and Ceramic Particles
- Matrices for Coated Particles

Metal and Cermet Waste Forms
- Metallic Waste Forms
- Cermet Waste Forms
- Metal Encapsulated Waste Forms

Spent Fuel as a Solid Waste Form
- Spent Fuel Descriptions
- Spent Fuel Disassembly and Bundling
- Properties of Irradiated Fuels

Canisters and Waste Packages
- Low Level Waste Packages
- Transuranic Waste Packages
- High Level Waste Packages

Leach Testing of Solid Wastes
- Principles
- Static Tests
- Flow Tests

Solidification Plant Requirements
- Contact Handled Wastes
- Remote Handled Wastes
- Secondary Waste Treatment

Costing Bases
- Cost Increments for Radioactive Processes
- Standardized Costing

6. DECONTAMINATION AND DECOMMISSIONING

Introduction
Applicable Regulations
Design Considerations to Accommodate D & D
Planning for Decommissioning
Decontamination of Operating Facilities
Decontamination of Shutdown Facilities
Techniques for Safe Storage of Decommissioned Facilities
Dismantlement Techniques for Decommissioned Facilities
Estimating the Cost of Facility Decommissioning
Case Histories

7. ASSAY, CLASSIFICATION, AND EFFLUENT MONITORING

(not available)

9. TREATMENT OF AIRBORNE WASTES

General Considerations on Gas Cleaning

NWMTS VOLUME OUTLINES, April 21, 1987

- The Retention of Airborne Particulates
  - Properties of Radioactive Airborne Particulates
  - Air Filtration Theory
  - Prefilters
  - High Efficiency Particulate Filters
  - Design of Air Filtration Systems
  - Performance of Air Filtration systems
    - Test Procedures
    - Instrumentation for Control
    - Accident Conditions
  - Liquid Particulates
- The Removal of Short-Lived Iodine Isotopes
  - Iodine Releases by Nuclear Power Stations
    - Under Normal Operations
    - Under Accidental Conditions
  - Sorption Theory
  - Design of Iodine Retention Systems
  - Test Procedures for Iodine Filters
  - Operational Experience with Iodine Filters
    - In Power Stations
    - The TMI-2 Experience
    - In Reprocessing Facilities
  - New Developments
- The Retention of Iodine-129 and NOX in Reprocessing Plants
  - The Radiological Significance of Iodine-129
  - Different Management Modes for I-129 Retention
  - Techniques for I-129 Retention
    - Wet Scrubbing
      - Iodiox
      - Mercuric Nitrate
      - Caustic Scrubbing
    - Solid Sorbents
      - Carbon
      - Silver Reactors
      - Silver Zeolites
      - AC6120
      - Other Solid Sorbents
  - NOX Retention
    - Chemistry
    - Processes
      - Scrubbers
      - Solid Sorbents
      - Destruction
  - System Design Considerations
  - Conclusions
- Tritium Retention
  - Tritium Behavior in the Fuel Cycle
  - Techniques for Tritium Retention
    - Recombination of Hydrogen
    - Cryogenic Distillation of Water
    - Isotopic Exchange Processes
  - Design Considerations for Tritium Retention
    - Recombination of Hydrogen
    - Cryogenic Distillation of Water
    - Isotopic Exchange Processes
  - Technical and Economic Evaluations
  - Practical Experiences

The Removal of Short-Lived Noble Gases
- Releases at Power Stations
  - Normal Operations
  - Accidental Conditions
- Design of Delay Systems
  - Delay Tanks
  - Delay Beds
- Experience with Delay Systems

The Retention of Krypton-85
- The Radiological Significance of Kr-85
- Techniques for Separating Kr-85
  - Cryogenic Distillation
  - Fluorocarbon Absorption
  - New Developments
- Design of Systems for Kr-85 Separations
- Practical Experiences in Kr-85 Retention
- Management Considerations for Kr-85 Retention

The Removal of Carbon-14
- Carbon-14 Sources in the Fuel Cycle
- Techniques for C-14 Trapping
  - Alkaline Solutions
  - Fluorocarbon Absorption
  - New Developments
- Design Criteria for C-14 Trapping
- Management Options for Secondary Waste Treatment

The Retention of Semi-Volatile Isotopes in High-T Processes
- Release Conditions for Semi-Volatile Isotopes
- Alternatives for Trapping Semi-Volatile Species
- General Trapping Techniques
- Design Considerations for Trapping Semi-Volatile Species
- Experimental Performance

Experience with Integrated Off-Gas Treatment Facilities
- In Nuclear Fission Reactors
  - PWR
  - BWR
  - CANDU
  - Others
- In Nuclear Fuel Fabrication Plants
  - Standard Fuel Fabrication
  - Plutonium Containing Fuel Fabrication
- In Reprocessing Plants
  - France
  - USA
  - UK
  - Japan
  - West Germany
- In Vitrification Plants
  - AVM (France)
  - Pamela (W. Germany)
  - Savannah River
  - Richland

10. SHALLOW LAND DISPOSAL

Introduction
- Sources and Types of Waste
- Performance Objectives

- Existing Experiences
- Site Selection
  - Geological Considerations
  - Ground Water
  - Surface Water
  - Other Site Characteristics
  - Site Selection Procedures
  - Site Characterization
- Site Development for Land Disposal
  - Land Acquisition
  - Site Boundaries
  - Surface Water Management
  - Site Layout
  - Costs
- Land Disposal Site Operations
  - Waste Receiving and Inspection
  - Waste Disposal
  - Trench Closure
  - Site Maintenance and Stabilization
  - Site Monitoring Programs
  - Personnel Training and Qualifications
  - Records Management
  - Site Security
  - Emergency Response Plans
  - Quality Assurance
- Trench Design and Construction
  - Trench Designs
  - Trench Construction
  - Costs
- Corrective Actions for Land Disposal
  - Site Surface Water and Erosion Management
  - Ground and Trench Water Management
  - Trench Cover Permeability Management
  - Trench Subsidence Management
  - Plant and Animal Intrusion Management
  - Management of Physico-Chemical Conditions
  - Other Techniques for Corrective Action
- Greater-Confinement Disposal
  - Above-Grade Confinement
  - Below-Grade Confinement
- Environmental Monitoring of Land Disposal
  - Design of a Monitoring Program
  - Design of Monitoring Systems
  - Monitoring Programs
  - Sampling and Measurement Techniques
  - Monitoring Program Costs
- Institutional Considerations
  - Federal U.S. Policy
  - Regional Compacts
  - Individual State Approaches
  - Generic Issues
  - Licensing and Other Regulatory Responsibilities
  - Site Closure and Long-Term Ownership
- Selecting a Land Disposal Alternative
  - Performance Objectives
  - Regulatory Requirements
  - Selection Processes

Alternative Evaluations

11. REPOSITORY SITING AND DESIGN

The Waste Isolation system
- The Repository in the Fuel Cycle
- Repository System Elements
- Alternative Disposal Systems
- The Decision Making Process

The Legislative and Regulatory Framework
- Introduction
- U.S. Institutional Background
- U.S. Legislative Background
- Permitting
- U.S. Strategy
- International Institutional Background
- International Legislative Background
- Other Alternatives
- Monitored Retrievable Storage

The Selection of a Repository Site
- Overview of Critical Site Selection Issues
- Geological Issues
- Seismicity/Tectonics
- Hydrological Issues
- Geochemical Issues
- Geomechanical Considerations

Repository Design
- Surface, Service and Waste Handling Facilities
- Subsurface Facilities

Waste Package Subsystem
- Introduction
- The Role of the Waste Package
- Package Design
- Processes Affecting Waste Package Performance
- Verification of Performance and Compliance

Assessing Risk
- Role of Risk Assessment
- Use of Risk Assessment in Site Selection
- Use in Preclosure Safety Analysis
- Use in Postclosure Performance Assessment
- Principles of Long-Term Performance
- Compliance Evaluation of Postclosure Results
- Program Element Selection
- Project Integration
- Model and Code Documentation

Quality Assurance Considerations
- Introduction
- The QA Program
- Sources of U.S. QA Requirements
- Sources of International QA Requirements
- Interpretation of QA Requirements
- Implementation of QA Requirements
- Basic Codes and Standards
- Elements of a QA Program
- QA Administration

Socioeconomic and Environmental Considerations

NWMTS VOLUME OUTLINES, April 21, 1987

Overview
NEPA Requirements
The Environmental Impacts
Socioeconomic Impacts
Social versus Socioeconomic Impacts
Merging the Considerations
The Decision Issue: Environment versus Geology

12. ECONOMICS AND FACILITIES DESIGN
(not available)

13. SYSTEMS ANALYSES, FORECASTING AND DATA REDUCTION

Introduction and Background
Systems Analysis
- Development of System Models
- System Integration
- Assessment Methods
- Total Life Cycle Costs

Forecasting and Data Reduction
- Analysis of Waste Sources
- Estimating Waste Generation
- Development of Forecasts
- Data Reduction Techniques

14. ENVIRONMENTAL, FINANCIAL AND INSTITUTIONAL IMPACTS
(not available)

15. SEA DISPOSAL (incomplete)

Introduction
Sea Disposal of Solid Low-Level Wastes
- Historical Background
- Regulatory Controls
- International Coordination
- Site Selection
- Environmental Issues
- Packaging and Transport
- Site Monitoring
- Risk Assessment
- Public Acceptance

Sea Disposal of Liquid Low-Level Wastes

16. INCINERATION

Introduction
- Incineration Performance Objectives
  - Volume Reduction
  - Thermal Detoxification
  - Chemical Stabilization
  - Recovery
- Combustible Waste Characteristics
  - Sources
    - Nuclear Fuel Cycle
    - Industrial
    - Government and Military
    - Institutional

- Waste Types
  - Dry Combustible
  - Liquids
  - Adsorbed Liquids

- Historical and Existing Applications
- Process Selection
  - Process Objectives
  - Selection Criteria
- Incinerator Process Subsystems-Concepts and Design
  - Feed Preparation
    - Sorting
    - Repackaging
    - Conditioning
  - Incinerator
    - Rotary Kiln
    - Fluidized Bed
    - Controlled-Air
    - Molten Salt
    - Cyclone
    - Multiple Hearth
    - Pyrolysis
    - Plasma
    - Infra-red
    - Molten Glass
    - Slagging Pyrolysis
  - Chemical/Radiological Offgas Cleanup
    - Aqueous
    - Dry
    - Combined
    - HEPA Filtration
  - Ash Handling Systems
  - Ancillary Support Equipment
  - Secondary Waste Management
  - Facility
    - Structure
    - Ventilation
    - Utilities
- Safety and Health
  - Safety Analysis
    - Chemical
    - Radiological
  - Standard Operating Procedures
- Environmental Regulations and Requirements
  - Nuclear
    - Regulations
    - Licensing Requirements
  - Chemical
    - Resource Conservation and Recovery Act
    - Toxic Substances Control Act
    - Permitting Procedures
    - Monitoring and Sampling Requirements
- Performance and Economics
  - Operating Experience
    - Manpower Requirements
    - Equipment Reliability
    - Materials Considerations

Economics
- Capital Investment
- Operating Costs

E-19-684

#4

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period April 1, 1987 thru June 30, 1987

DE-FG09-86SR15156

E-19-684

July 24, 1987

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. Although we have not yet received a complete manuscript for any one volume as of this date, significant progress was made during this period and the series editors have received about 80% of the draft manuscript for Volume 9, Treatment of Airborne Wastes.

An invitation was extended to a candidate volume editor for Volume 14, Environmental Modeling. At this time, however, the offer had not been accepted.

Letters of encouragement to the current participants were sent by Harwood Academic Publisher. These letters also reaffirmed the publisher's intention to aggressively advertise and market the series and to see that it becomes a work of lasting value to the technical community. Letters and supporting documentation were sent to 77 participants. A current list of volume titles is attached.

Although several dates for the receipt of complete draft manuscripts were not met in June, the series editors remain optimistic that at least two completed manuscripts will be available by the end of this summer. In several instances, a volume manuscript is being held up by a single author. Generally, these authors are highly qualified, but also very busy.

GOALS FOR NEXT QUARTER

The series editors and the volume editor for Volume 9, Treatment of Airborne Wastes, plan to meet at Georgia Tech in August to discuss the volume status in depth. Hopefully, this meeting will expedite the timely completion of the volume as indicated in the Status Summary Table.

Finding a volume editor for Volume 14, Environmental Modeling, remains as a high priority item. The series editors also hope to see most of the remaining major milestones in the Status Summary Table completed during this next period. In some instances, the completion of these milestones is being impeded by personal problems of the volume editors. These problems will be dealt with on a case-by-case basis.

Distribution: J. O. Blomeke, ORNL
J. Geiger, SRO
P. McGreevy, HAP
R. W. Rousseau, GIT
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

D. W. Tedder and J. O. Blomeke

Series Editors

24-Jul-87

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	50%	Nov-87	Apr-88
2	Yes	Yes	Yes	75%	Sep-87	Feb-88
3	Yes	Yes	Yes	0%		
4	Yes	Yes	No	5%		
5	Yes	Yes	No	10%		
6	Yes	Yes	Yes	40%	Sep-87	Feb-88
7	Yes	No	No	0%		
9	Yes	Yes	Yes	80%	Sep-87	Feb-88
10	Yes	Yes	Yes	95%	Aug-87	Jan-88
11	Yes	Yes	Yes	20%	Dec-87	May-88
12	Yes	No	No	0%		
13	Yes	Yes	Yes	30%	Nov-87	Apr-88
14	No	No	No	0%		
15	Yes	No	No	10%		
16	Yes	Yes	No	0%		
Average Percentage of Series Drafted:				28%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NUCLEAR WASTE MANAGEMENT TECHNOLOGY SERIES

EDITOR
D. WILLIAM TEDDER
SCHOOL OF CHEMICAL ENGINEERING
GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332-0100 USA
TELEPHONE: (1-404) 894-2856
TELEX: 542507 GTRI OCA ATL

EDITOR
J. O. BLOMEKE
OAK RIDGE NATIONAL LABORATORY
POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37831 USA
TELEPHONE: (1-615) 574-7126
TELEX: 810 572 1076 USDOE OKRE

harwood academic publishers

chur
london
paris
new york

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

July 24, 1987

Edited by

D. W. Tedder and J. O. Blomeke

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations
2. Isotopic Products Recovery and Usage

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management
4. Volume Reduction and Concentration
5. Solidification
6. Decontamination and Decommissioning
7. Assay, Classification, and Effluent Monitoring
9. Treatment of Airborne Wastes
10. Shallow Land Disposal
11. Repository Siting and Design
15. Sea Disposal
16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design
13. Systems Analyses, Forecasting, and Data Reduction
14. Environmental Modeling

E-19-684
#5

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period July 1, 1987 thru September 30, 1987

DE-FG09-86SR15156

E-19-684

October 19, 1987

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. During this period, the series editors met in Atlanta with Dr. Goossens of Mole, Belgium and discussed the current status of Volume 9, Treatment of Airborne Wastes. Since that time, letters have been written to several of the volume contributors urging them to complete their chapters and the editors agreed on a general plan of revision that will hopefully lead to a timely completion of this volume. At the time of the meeting, about 80% of the draft manuscript was available and it was clear that extensive revisions were still needed.

A complete manuscript for Volume 10, Near-Surface Land Disposal, was received from Howard Kittel. This manuscript appears to be in good shape and it is now in the process of final review. We are hoping that we will be able to make any final revisions and send it to the publisher before the end of the calendar year.

An invitation was extended to a candidate volume editor for Volume 14, Environmental Modeling. At this time, however, the offer has not been accepted.

The editor for Volume 12, Economics and Facilities Design, has withdrawn because of commitments to other projects. We are in the process of identifying a replacement.

GOALS FOR NEXT QUARTER

Finding volume editors for Volumes 12 and 14, remains as a high priority item. The series editors also hope to see most of the remaining major milestones in the Status Summary Table completed in the near future. In some instances, the completion of these milestones is being impeded by personal problems of the volume editors. These problems are being dealt with on a case-by-case basis.

We also plan to send out another news letter to the participants during this quarter urging them complete their contributions. This news letter will probably be sent out after we have received the reviews on Volume 10.

Distribution: J. O. Blomeke, ORNL
J. Geiger, SRO
P. McGreevy, HAP
R. W. Rousseau, GIT
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

D. W. Tedder and J. O. Blomeke

Series Editors

19-Oct-87

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	50%	Jan-88	Jun-88
2	Yes	Yes	Yes	60%	Jun-88	Nov-88
3	Yes	Yes	Yes	0%		
4	Yes	Yes	No	5%		
5	Yes	Yes	No	10%		
6	Yes	Yes	Yes	40%	Dec-87	May-88
7	Yes	No	No	0%		
9	Yes	Yes	Yes	90%	Jan-88	Jun-88
10	Yes	Yes	Yes	100%	Yes	Dec-87
11	Yes	Yes	Yes	20%	Dec-88	May-89
12	No	No	No	0%		
13	Yes	Yes	Yes	30%	Mar-88	Aug-88
14	No	No	No	0%		
15	Yes	No	No	10%		
16	Yes	Yes	No	0%		
Average Percentage of Series Drafted:				28%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NUCLEAR WASTE MANAGEMENT TECHNOLOGY SERIES

EDITOR
D. WILLIAM TEDDER
SCHOOL OF CHEMICAL ENGINEERING
GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332-0100 USA
TELEPHONE: (1-404) 894-2856
TELEX: 542507 GTRI OCA ATL

EDITOR
J. O. BLOMEKE
OAK RIDGE NATIONAL LABORATORY
POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37831 USA
TELEPHONE: (1-615) 574-7126
TELEX: 810 572 1076 USDOE OKRE

harwood academic publishers

chur
london
paris
new york

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

October 19, 1987

Edited by

D. W. Tedder and J. O. Blomeke

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations
2. Isotopic Products Recovery and Usage

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management
4. Volume Reduction and Concentration
5. Solidification
6. Decontamination and Decommissioning
7. Assay, Classification, and Effluent Monitoring
9. Treatment of Airborne Wastes
10. Near-Surface Land Disposal
11. Repository Siting and Design
15. Sea Disposal
16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design
13. Systems Analyses, Forecasting, and Data Reduction
14. Environmental Modeling

E-19-684
#6

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period October 1, 1987 thru December 31, 1987

DE-FG09-86SR15156

E-19-684

January 18, 1987

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. During this period, we received review comments for Volume 10, Near-Surface Land Disposal, as edited by Howard Kittel. Based upon these comments, revisions are now under way on the manuscript to include additional information describing the costs of low-level waste disposal. Also, one new chapter, entitled: "Evaluation of Alternatives to Shallow Land Burial," is being added to the volume. Currently, we hope to have the manuscript for this final chapter completed by January 31, 1988. Therefore, we expect to transmit the final, reviewed manuscript of the entire volume to Harwood Academic Publishers in New York no later than March 1, 1988.

An invitation was extended to a candidate volume editor for Volume 14, Environmental Modeling. We are pleased to report that Dr. E. J. Salmon, Fluor Corporation, California, has accepted this responsibility. Dr. Salmon has extensive background in environmental problems and many technical contacts. We expect he will provide an excellent volume for the series.

We are still in the process of identifying a replacement editor for Volume 12, Economics and Facilities Design.

Dr. John Blomeke, Series Editor, has retired from ORNL and will be unable to continue his work on this project. Dr. Tedder is looking for another series editor to replace him.

GOALS FOR NEXT QUARTER

Finding a volume editor for Volumes 12 and another series editor is a high priority item. The senior series editor also hopes to see most of the remaining major milestones in the Status Summary Table completed in the near future. In some instances, the completion of these milestones is being impeded by personal problems of the volume editors. These problems are still being dealt with on a case-by-case basis.

The Senior Series Editor, Dr. Tedder, Wally Schulz, HEDL, and Dr. Dick Wallace, SRL, will meet to discuss the status of Volume 2. This meeting is planned to occur at Georgia Tech in January. Hopefully, we will be able to send the Volume 2 manuscript out for review in the near future.

Workshops are planned again this year at Waste Management 88 in Tucson. In previous years these workshops have been highly productive since many of the series participants also attend these meetings. A news letter will be sent out shortly to all series participants urging them to attend the workshops.

Distribution: J. Geiger, SRO
P. McGreevy, HAP
R. W. Rousseau, GIT
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

NUCLEAR WASTE MANAGEMENT TECHNOLOGY SERIES

EDITOR
D. WILLIAM TEDDER
SCHOOL OF CHEMICAL ENGINEERING
GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332-0100 USA
TELEPHONE: (1-404) 894-2856
TELEX: 542507 GTRI OCA ATL

EDITOR
J. O. BLOMEKE
OAK RIDGE NATIONAL LABORATORY
POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37831 USA
TELEPHONE: (1-615) 574-7126
TELEX: 810 572 1076 USDOE OKRE

harwood academic publishers

chur
london
paris
new york

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

October 19, 1987

Edited by

D. W. Tedder and J. O. Blomeke

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations
2. Isotopic Products Recovery and Usage

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management
4. Volume Reduction and Concentration
5. Solidification
6. Decontamination and Decommissioning
7. Assay, Classification, and Effluent Monitoring
9. Treatment of Airborne Wastes
10. Near-Surface Land Disposal
11. Repository Siting and Design
15. Sea Disposal
16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design
13. Systems Analyses, Forecasting, and Data Reduction
14. Environmental Modeling

NUCLEAR WASTE MANAGEMENT TECHNOLOGY SERIES

EDITOR
D. WILLIAM TEDDER
SCHOOL OF CHEMICAL ENGINEERING
GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332-0100 USA
TELEPHONE: (1-404) 894-2856
TELEX: 542507 GTRI OCA ATL

EDITOR
J. O. BLOMEKE
OAK RIDGE NATIONAL LABORATORY
POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37831 USA
TELEPHONE: (1-615) 574-7126
TELEX: 810 572 1076 USDOE OKRE

harwood academic publishers

chur
london
paris
new york

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

D. W. Tedder and J. O. Blomeke
Series Editors
18-Jan-88

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	60%	Jun-88	Nov-88
2	Yes	Yes	Yes	80%	Apr-88	Sep-88
3	Yes	Yes	Yes	5%		
4	Yes	Yes	No	5%		
5	Yes	Yes	No	10%		
6	Yes	Yes	Yes	60%	Jun-88	Nov-88
7	Yes	Yes	No	5%		
9	Yes	Yes	Yes	95%	Feb-88	Jul-88
10	Yes	Yes	Yes	95%	Yes	Yes
11	Yes	Yes	Yes	20%	Dec-88	May-89
12	No	No	No	0%		
13	Yes	Yes	Yes	35%	Dec-88	May-89
14	Yes	No	No	0%		
15	Yes	No	No	10%		
16	Yes	Yes	No	5%		
Average Percentage of Series Drafted:				32%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from the Senior Series Editor, D. W. Tedder.

r. . O Blomeke
ak Ridge National Laboratory
. O. Box X
ak Ridge TN
7831 U.S.A.

r. A. L. Taboas
. S. Department of Energy
8ØØ South Cass Avenue
rgonne Illinois
Ø439 U.S.A.

Mr. John Geiger
U.S. Dept of Energy, SRO
P. O. Box A
Aiken S.C.
29Ø1 U.S.A.

U.S. Department of Energy
Contracts and Services Div.
P.O. Box A, SRO
Aiken S.C.
29Ø2

Ms. Pamela McGreevy
Harwood Academic Publishers
P. O. Box 786, Cooper Statio
New York N.Y.
1Ø276 U.S.A.

E-19-684
#7

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period January 1, 1988 thru March 31, 1988

DE-FG09-86SR15156

E-19-684

April 21, 1988

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. During this period, the completed manuscript for Volume 10, Near-Surface Land Disposal was forwarded to Harwood Academic Publisher. This volume will be published as Volume 1 of the series. The publisher estimates that 5-8 months will be required to typeset the volume and complete the galley editing.

A revised manuscript for Volume 9, Treatment of Airborne Wastes, was received from Dr. Goossens at the Workshops in Tucson. This volume is now being reviewed. Hopefully, we will be able to submit the final manuscript of this volume to the publisher by the end of the next quarter.

The recent events at Hanford have severely disrupted work on Volume 11, Repository Siting and Design. Many of the contributors are now unemployed and the editors are working to find replacement contributors as quickly as possible. Several of the contributors are still working on their chapters, but at a reduced level of effort until they find new employment.

The Senior Series Editor, Dr. Tedder, Wally Schulz, HEDL, and Dr. Dick Wallace, SRL, met in Atlanta and reviewed the status of Volume 2. A title change resulted from this meeting and the volume is now entitled: Chemical Processing Wastes. The editors also agreed that the scope of the volume would be revised to cover only those topics that are not being described in other volumes. In particular, the use of TBP in the treatment of scrap wastes is being discussed in detail in volumes to be published by CRC. Volume 2 of our series will complement the CRC effort.

The recent events at Hanford have not greatly affected work on Volume 2, Chemical Processing Wastes. However, the editors all agreed that the current manuscript still needs extensive revisions to provide additional material balance and design information and to meet the series goals.

We are still in the process of identifying a replacement editor for Volume 12, Economics and Facilities Design.

At the Workshops in Tucson, Dr. A. M. Platt, Battelle Northwest Laboratory, agreed to replace Dr. John Blomeke as Series Editor. Dr. Tedder will remain as the senior series editor.

Two workshops were held at Waste Management 88 in Tucson. The status of the volumes was reviewed and several additional changes in volume organization were identified. In particular, Volume 1, Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations has been divided into a historical volume and a technical volume. This change will facilitate completion of the volume and reduce the editorial problems. Also, selected sections in Volumes 1 and 2 on source management have been transferred to Volume 3: Packaging, Transportation, Storage and Source Management.

GOALS FOR NEXT QUARTER

Finding a volume editor for Volume 12 remains as a high priority item. The senior series editor also hopes to see most of the remaining major milestones in the Status Summary Table completed in the near future. In some instances, the completion of these milestones is being impeded by personal problems of the volume editors. These problems are being dealt with on a case-by-case basis.

The senior series editor will be taking additional steps this quarter to motivate the volume editors and authors. In some instances, the present volume editors will be replaced due to lack of progress. In other instances, the senior series editor will be working to help volume editors find contributors. Most of this additional effort will occur this summer.

Distribution:
J. Geiger, SRO
P. McGreevy, HAP
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

D. W. Tedder and A. M. Platt
Series Editors
21-Apr-88

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	60%	Nov-88	Apr-89
2	Yes	Yes	Yes	80%	Nov-88	Apr-89
3	Yes	Yes	No	0%		
4	Yes	Yes	No	5%		
5	Yes	Yes	No	10%		
6	Yes	Yes	Yes	60%	Aug-88	Jan-89
7	Yes	Yes	No	5%		
9	Yes	Yes	Yes	95%	Yes	No
10	Yes	Yes	Yes	100%	Yes	Yes
11	Yes	Yes	No	10%		
12	No	No	No	0%		
13	Yes	Yes	Yes	35%	Dec-88	May-89
14	Yes	No	No	0%		
15	Yes	No	No	10%		
16	Yes	Yes	No	5%		
Average Percentage of Series Drafted:				32%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from the Senior Series Editor, D. W. Tedder.

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

April 21, 1988

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations
2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management
4. Volume Reduction and Concentration
5. Solidification
6. Decontamination and Decommissioning
7. Assay, Classification, and Effluent Monitoring
9. Treatment of Airborne Wastes
10. Near-Surface Land Disposal
11. Repository Siting and Design
15. Sea Disposal
16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design
13. Systems Analyses, Forecasting, and Data Reduction
14. Environmental Modeling

E-19-684
#8

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period April 1, 1988 thru June 30, 1988

DE-FG09-86SR15156

E-19-684

July 13, 1988

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached.

A revised manuscript for Volume 9, Treatment of Airborne Wastes, is still under review. It now appears that substantial revisions will be required before it can be submitted to the publisher.

The recent events at Hanford severely disrupted work on Volume 11, Repository Siting and Design. As a consequence, the volume editors and their authors resigned. An invitation was extended to a new volume editor and it is under consideration. He trying to obtain approval from the DOE.

The editor for Volume 5, Solidification, has also resigned. We are working to find a replacement.

We are still in the process of identifying a replacement editor for Volume 12, Economics and Facilities Design.

Several milestones were completed for Volumes 3 and 4. Most of the authors have been identified and manuscript preparation is now under way.

The senior series editor received verbal assurances from the Volume 15 editor, Sea Disposal, that portions of this manuscript are in preparation. However, a formal volume outline and list of authors has not been received or approved. Therefore, the milestones are shown as incomplete.

GOALS FOR NEXT QUARTER

Finding replacement volume editors is our top priority item. We are trying to find U.S. citizens to edit Volumes 5 and 11. If this is not possible, we will approach individuals in the european community.

We hope to complete the editing and revisions to Volume 9 this quarter. This goal will probably require involvement from at least one more author. In particular, the volume needs more information on the regulatory environment, the risks, and the health effects of airborne wastes to put the technology in perspective.

Distribution:
J. Geiger, SRO
P. Manor, HAP
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

D. W. Tedder and A. M. Platt
Series Editors

13-Jul-88

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	75%	Nov-88	Apr-89
2	Yes	Yes	Yes	85%	Nov-88	Apr-89
3	Yes	Yes	Yes	20%		
4	Yes	Yes	Yes	15%	Dec-88	May-89
5	No	Yes	No	0%		
6	Yes	Yes	Yes	70%	Sep-88	Feb-89
7	Yes	Yes	Yes	10%		
9	Yes	Yes	Yes	95%	Yes	No
10	Yes	Yes	Yes	100%	Yes	Yes
11	No	Yes	No	0%		
12	No	No	No	0%		
13	Yes	Yes	Yes	50%	Dec-88	May-89
14	Yes	No	No	0%		
15	Yes	No	No	10%		
16	Yes	Yes	No	5%		
Average Percentage of Series Drafted:				36%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from the Senior Series Editor, D. W. Tedder.

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

July 13, 1988

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations
2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management
4. Volume Reduction and Concentration
5. Solidification
6. Decontamination and Decommissioning
7. Assay, Classification, and Effluent Monitoring
9. Treatment of Airborne Wastes
10. Near-Surface Land Disposal
11. Repository Siting and Design
15. Sea Disposal
16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design
13. Systems Analyses, Forecasting, and Data Reduction
14. Environmental Modeling

E-19-684
AF9

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period July 1, 1988 thru September 30, 1988

DE-FG09-86SR15156

E-19-684

October 23, 1988

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached.

We are still waiting to receive the galley proofs for Volume 10, Near-Surface Land Disposal. The publisher estimates five to eight months are required from that time at which the final, reviewed manuscripts are received from the Senior Series Editor. The manuscripts were transmitted in April 1988.

The completed manuscript for Volume 9, Treatment of Airborne Wastes, has been reviewed. The reviewers' comments and suggested changes have been sent to the volume editor. We expect to submit the revised manuscript to the publisher next quarter.

We are still searching for volume editors for Volume 11, Repository Siting and Design, Volume 5, Solidification, and Volume 12, Economics and Facilities Design. In addition, the volume editor for Volume 14, Environmental Modeling, has also recently resigned. The resignations for Volumes 5, 12, and 14 were all due to personal problems. The resignations for Volume 11 resulted from layoffs at Hanford.

The progress on those volumes still lacking editors is well behind the original schedule. However, an offer to a candidate volume editor for Volume 11, Repository Siting and Design, has been extended and is pending. If a favorable response is not obtained in the near future, an offer will be extended to a European candidate. We are still working to find suitable volume editors for those positions that remain unfilled.

Significant progress is being made on most of the remaining volumes. Volume 7, Assay, Classification, and Effluent Monitoring, and Volume 16, Incineration, are exceptions and we are concerned about their status. In the absence of measurable progress on these volumes during the next quarter, we will be looking for new volume editors or other methods to expedite completion of the series.

We have several options to expedite the remaining volumes. Our preference is to find suitable volume editors. Failing that option, we may either consolidate some of the remaining volumes or eliminate them entirely. In the cases of Volume 16, Incineration, and Volume 12, Economics and Facilities Design, several publications are already available and the elimination of these volumes should not greatly affect the overall value of the series. In other instances, such as with Volume 11, Repository Siting and Design, and Volume 15, Sea Disposal, it is essential that they be completed.

GOALS FOR NEXT QUARTER

Finding replacement volume editors for those volumes that are essential to the series remains as our top priority item. These positions must be filled before the end of CY88 to expedite the series completion.

We hope to complete the editing of the galley proofs for Volume 10, Near-Surface Land Disposal, this quarter although the proofs may not be available from the publisher until next quarter.

We hope to complete the revisions to Volume 9 this quarter and to submit the final manuscript to the publisher by the end of the CY88. Since the volume editor is in Belgium, this process may not be completed until March 1989.

Distribution:
J. Geiger, SRO
P. Manor, HAP
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

D. W. Tedder and A. M. Platt
Series Editors

23-Oct-88

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	70%	Dec-88	May-89
2	Yes	Yes	Yes	95%	Dec-88	May-89
3	Yes	Yes	Yes	30%		
4	Yes	Yes	Yes	25%	Dec-88	May-89
5	No	Yes	No	0%		
6	Yes	Yes	Yes	70%	Dec-88	May-89
7	Yes	Yes	Yes	10%		
9	Yes	Yes	Yes	100%	Yes	Yes
10	Yes	Yes	Yes	100%	Yes	Yes
11	No	Yes	No	0%		
12	No	No	No	0%		
13	Yes	Yes	Yes	60%	Dec-88	May-89
14	No	No	No	0%		
15	Yes	Yes	Yes	20%		
16	Yes	Yes	No	5%		
Average Percentage of Series Drafted:				39%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from the Senior Series Editor, D. W. Tedder.

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

October 23, 1988

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations
2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management
4. Volume Reduction and Concentration
5. Solidification
6. Decontamination and Decommissioning
7. Assay, Classification, and Effluent Monitoring
9. Treatment of Airborne Wastes
10. Near-Surface Land Disposal
11. Repository Siting and Design
15. Sea Disposal
16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design
13. Systems Analyses, Forecasting, and Data Reduction
14. Environmental Modeling

E-19-684
#10

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period October 1, 1988 thru December 31, 1988

DE-FG09-86SR15156

E-19-684

January 27, 1989

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. Unfortunately, we have had to move several draft available dates into CY-89. Our best current estimates are indicated in the status table.

We are still waiting to receive the galley proofs for Volume 10, Near-Surface Land Disposal. Harwood indicates that they are nearing completion. The manuscripts were transmitted in April 1988.

Volume editors have been found for Volume 11, Repository Siting and Design. Carl Gertz and Larry Skousen, U.S. DOE, Yucca Mountain Project, Las Vegas, Nevada have agreed to serve in this capacity. Hopefully, we will now move ahead quickly on this essential volume.

We are still searching for volume editors for Volume 5, Solidification; Volume 12, Economics and Facilities Design; and Volume 14, Environmental Modeling. Several possible editors for Volume 5 are being pursued. Volumes 12 and 14 may be dropped from the series since they deal with peripheral topics, rather than waste management technology.

GOALS FOR NEXT QUARTER

Finding replacement volume editors for those volumes that are essential to the series (Volume 5) remains as our top priority item.

We hope to complete the editing of the galley proofs for Volume 10, Near-Surface Land Disposal, this quarter. We also expect to complete the revisions to Volume 9 this quarter.

Workshops will be held at Waste Management 89 in Tucson on Monday and Tuesday afternoons from 5-6pm. Progress on individual volumes will be reviewed. Alternatives for expediting the series will be discussed. A flyer is attached.

Distribution:
J. Geiger, SRO
P. Manor, HAP
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

D. W. Tedder and A. M. Platt
Series Editors

28-Jan-89

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	70%	Jul-89	Dec-89
2	Yes	Yes	Yes	100%	Jul-89	Dec-89
3	Yes	Yes	Yes	25%	Sep-89	Feb-90
4	Yes	Yes	Yes	25%	Aug-88	Jan-89
5	No	Yes	No	0%		
6	Yes	Yes	Yes	70%	Jul-88	Dec-88
7	Yes	Yes	Yes	10%		
9	Yes	Yes	Yes	100%	Yes	Yes
10	Yes	Yes	Yes	100%	Yes	Yes
11	Yes	No	No	0%		
12	No	No	No	0%		
13	Yes	Yes	Yes	60%	Jul-88	Dec-88
14	No	No	No	0%		
15	Yes	Yes	Yes	20%		
16	Yes	Yes	No	5%		
Average Percentage of Series Drafted:				39%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from the Senior Series Editor, D. W. Tedder.

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

January 27, 1989

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations
2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management
4. Volume Reduction and Concentration
5. Solidification
6. Decontamination and Decommissioning
7. Assay, Classification, and Effluent Monitoring
9. Treatment of Airborne Wastes
10. Near-Surface Land Disposal
11. Repository Siting and Design
15. Sea Disposal
16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design
13. Systems Analyses, Forecasting, and Data Reduction
14. Environmental Modeling

NUCLEAR WASTE MANAGEMENT TECHNOLOGY SERIES

EDITOR
D. WILLIAM TEDDER
SCHOOL OF CHEMICAL ENGINEERING
GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332-0100 USA
TELEPHONE: (1-404) 894-2856
TELEX: 542507 GTRI OCA ATL
FAX: 404 894-3120

EDITOR
A.M. PLATT
BATTELLE PACIFIC
NORTHWEST LABORATORY
P.O. BOX 999
RICHLAND, WA 99352 USA
TELEPHONE: (1-509) 375-2273
FAX: 509 376-3876

harwood academic publishers

chur
london
paris
new york

NUCLEAR WASTE MANAGEMENT TECHNOLOGY SERIES NEWSLETTER

January 29, 1989

There will be workshops at Waste Management '89 in Tucson, Arizona. We plan to meet on Monday and Tuesday afternoons, February 27 and 28, after the formal sessions at 5 to 6 pm in the Orpheum Room (lower level of the Holiday Inn). Please look for signs.

Topics of discussion will include a review of each volume's status, current outlines, and the identification of any necessary modifications to the series structure. Volume editors should provide outlines for review. Authors should submit contributions to their volume editor(s) as soon as possible. The publication schedule will be updated.

These meetings represent an important opportunity to improve the team effort. Previous workshops have been highly productive. Please make every effort to attend. If you cannot attend, please send a representative. All interested parties are welcome.

E-19-684

#11

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period January 1, 1989 thru March 31, 1989

DE-FG09-86SR15156

E-19-684

April 25, 1989

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. Unfortunately, we have had to move several draft available dates into CY-89. Our best current estimates are indicated in the status table.

Workshops were held in Tuscon on February 27-28 at Waste Management 89. Both sessions were well attended and productive. Roxanne Edwards, U.S. DOE Nevada, represented Carl Gertz as the new volume editor for Volume 11: Repository Siting and Design. Progress on this volume was set back due to programming changes and layoffs at Hanford.

No major changes in volume outlines were identified during either meeting. The primary emphasis was on expediting the volumes and completing the series. For example, several authors expressed concerns that their contributions would become obsolete due to delays in completing their volumes.

In order to deal with this problem, the series editor is taking additional steps to contact volume editors on a more frequent basis. He is also taking steps to help expedite the review process for chapter contributions in those volumes experiencing excessive delays.

Our publisher, Harwood Academic, was represented by Phil Manor and Scott Denton who attended both sessions and hosted receptions following the meeting. They indicated that Volume 10, Near-Surface Land Disposal, should be available for sale by July 1989 or sooner. Hopefully, the availability of this volume will encourage the other participants to redouble their efforts to complete this project.

We are still searching for volume editors for Volume 5, Solidification; Volume 12, Economics and Facilities Design; and Volume 14, Environmental Modeling. Several possible editors for Volumes 5 and 14 are being pursued.

GOALS FOR NEXT QUARTER

Finding replacement volume editors for those volumes that are essential to the series (Volume 5) is still a top priority item. An offer was extended to an engineering working in industry who is well qualified to serve as editor for this volume. Unfortunately, he was unable to accept due to other commitments. Several other individuals are being approached instead.

Several qualified individuals for editing Volume 14, Environmental Modeling, were identified in Tucson. We are hopeful that we will obtain a commitment in the next 3-6 months.

Draft manuscripts for several additional volumes (1, 2, 6, and 13) have been promised for completion by this summer. We are optimistic that at least two will be available for review by the end of the summer.

Distribution:
J. Geiger, SRO
P. Manor, HAP
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

D. W. Tedder and A. M. Platt

Series Editors

25-Apr-89

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	70%	Jul-89	Dec-89
2	Yes	Yes	Yes	100%	Jul-89	Dec-89
3	Yes	Yes	Yes	25%	Sep-89	Feb-90
4	Yes	Yes	Yes	25%	Aug-89	Jan-90
5	No	Yes	No	0%		
6	Yes	Yes	Yes	70%	Jul-89	Dec-89
7	Yes	Yes	Yes	10%		
9	Yes	Yes	Yes	100%	Yes	Yes
10	Yes	Yes	Yes	100%	Yes	Yes
11	Yes	No	No	0%		
12	No	No	No	0%		
13	Yes	Yes	Yes	60%	Jul-89	Dec-89
14	No	No	No	0%		
15	Yes	Yes	Yes	20%		
16	Yes	Yes	No	5%		
Average Percentage of Series Drafted:				39%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from the Senior Series Editor, D. W. Tedder.

NUCLEAR WASTE MANAGEMENT TECHNOLOGY SERIES

EDITOR
D. WILLIAM TEDDER
SCHOOL OF CHEMICAL ENGINEERING
GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332-0100 USA
TELEPHONE: (1-404) 894-2856
TELEX: 542507 GTRI OCA ATL
FAX: 404 894-3120

EDITOR
A.M. PLATT
BATTELLE PACIFIC
NORTHWEST LABORATORY
P.O. BOX 999
RICHLAND, WA 99352 USA
TELEPHONE: (1-509) 375-2273
FAX: 509 376-3876

harwood academic publishers

chur
london
paris
new york

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

January 27, 1989

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations
2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management
4. Volume Reduction and Concentration
5. Solidification
6. Decontamination and Decommissioning
7. Assay, Classification, and Effluent Monitoring
9. Treatment of Airborne Wastes
10. Near-Surface Land Disposal
11. Repository Siting and Design
15. Sea Disposal
16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design
13. Systems Analyses, Forecasting, and Data Reduction
14. Environmental Modeling

E-19-684 #12

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period April 1, 1989 thru June 30, 1989

DE-FG09-86SR15156

E-19-684

July 29, 1989

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. Our best current estimates are indicated in the status table.

Volume 10, "Near-Surface Land Disposal," is now available for sale. Harwood Academic Publisher completed the first edition last week, and we hope that this achievement will give momentum to all remaining editors and authors. Harwood will begin marketing efforts in earnest this fall.

Volume 11, "Repository Siting and Design," is back on track. The January 1990 date in the Status Summary Table is from a DOE Memorandum at Yucca Mountain where the draft will be completed. This volume is essential for the series, and we look forward to reviewing the draft in January.

Volume 9, "Treatment of Airborne Wastes," is in the final editing stages at Georgia Tech. Dr. Geoffrey G. Eichholz, Regents Professor in Nuclear Engineering, is completing this task. Our goal is to send an edited volume manuscript to the publisher by the middle of November 1989.

Volume 2, "Chemical Processing Wastes," has experienced a major setback. All chapters are completed in draft form and ready for review. However, Chapter 3 by Dr. Dana Christensen, Los Alamos National Laboratory, "Plutonium Recovery from Scrap Wastes at LANL," has been classified as "Unclassified Controlled Nuclear Information" (UCNI). This decision is a big disappointment to the author who has worked long and hard to achieve the volume goals. It also means that we will experience at least another year's delay in completing Volume 2 unless a way can be found to reverse the UCNI classification.

We are still searching for volume editors for Volume 5, "Solidification"; Volume 12, "Economics and Facilities Design"; and Volume 14, "Environmental Modeling". An offer is now being considered by a potential editor for Volume 5. Offers will be formally extended to Canadian and British organizations that have expressed interest in Volumes 12 and 14. Contacts with technical representatives were made in Tucson.

GOALS FOR NEXT QUARTER

Finding replacement volume editors for those volumes that are essential to the series (Volume 5) is still a top priority item. We hope to have a commitment on Volume 5 this quarter, and we will extend offers for Volumes 12 and 14.

We expect to complete the final editing of Volume 9 this quarter. We have experienced some delays in that files on several floppy disks have not been recovered. We still hope to translate this information by computer, however, and to avoid retyping those chapters.

Draft manuscripts for several additional volumes have been promised for completion by this summer. We are still optimistic that at least two volume manuscripts will be available for review by the end of the summer (i.e. September).

Distribution: J. Geiger, SRO
P. Manor, HAP
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies) ✓
U.S. DOE, CSD, SRO (2 copies)

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

D. W. Tedder and A. M. Platt
Series Editors

29-Jul-89

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	70%	Dec-89	May-90
2	Yes	Yes	Yes	100%	Dec-89	May-90
3	Yes	Yes	Yes	25%	Sep-89	Feb-90
4	Yes	Yes	Yes	25%	Sep-89	Feb-90
5	No	Yes	No	0%		
6	Yes	Yes	Yes	70%	Sep-89	Feb-90
7	Yes	Yes	Yes	10%		
9	Yes	Yes	Yes	100%	Yes	Yes
10	Yes	Yes	Yes	100%	Yes	Yes
11	Yes	Yes	Yes	10%	Jan-90	Jun-90
12	No	No	No	0%		
13	Yes	Yes	Yes	60%	Sep-89	Feb-90
14	No	No	No	0%		
15	Yes	Yes	Yes	20%		
16	Yes	Yes	No	5%		
Average Percentage of Series Drafted:				40%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from the Senior Series Editor, D. W. Tedder.

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

July 29, 1989

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations

2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

4. Volume Reduction and Concentration

5. Solidification

6. Decontamination and Decommissioning

7. Assay, Classification, and Effluent Monitoring

9. Treatment of Airborne Wastes

10. Near-Surface Land Disposal

11. Repository Siting and Design

15. Sea Disposal

16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

E-19-684
#13

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period July 1 through September 30, 1989

DE-FG09-86SR15156

E-19-684

October 24, 1989

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. Volume 1 (working Volume No. 10), Near-Surface Land Disposal, is now complete and Harwood Academic is beginning its marketing activities.

The final editing for Volume 9, Treatment of Airborne Wastes, has continued at Georgia Tech during this period. We are now about 60% through the final editing. We expect to transmit it to the publisher by January.

We are nearing completion of drafts on several other volumes as well. Volume 2, Chemical Processing Wastes, is completely drafted. We still have a problem with one chapter in Volume 2 which received the UCNI classification and cannot be released in its present form. The author has been asked to submit his chapter to internal review and make the necessary modifications so that it can be released.

Volume 3, Packaging, Transportation, Storage and Source Management, is also nearing completion in draft form. The volume editor expects to have the complete manuscript available for review before the end of the year.

Invitations to participate have been sent to prospective volume editors for Volume 12, Economics and Facilities Design, and Volume 14, Environmental Modeling. The invitation to serve as volume editor for Volume 5, Solidification, that was extended last quarter is still under consideration. We hope to have a decision on our invitation for Volume 5 within the month. We should have responses for Volumes 12 and 14 by the end of the quarter.

Progress is being made on most of the other volumes as can be seen from the Status Summary Table.

GOALS FOR NEXT QUARTER

Finding volume editors for Volumes 5, 12, and 14 remains as a high priority item.

We are extending offers to several volume editors to optically scan draft material for them, and to assist in typing documents at Georgia Tech. In this way, we hope to accelerate the rate of draft completion and the final editing process.

We are also making preparations for our next workshop at Waste Management 90 in Tucson.

Distribution: R. Crane, HAP
J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
T. Siolek, GPSP
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY
D. W. Tedder and A. M. Platt
Series Editors
24-Oct-89

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	70%	Jan-90	Jun-90
2	Yes	Yes	Yes	100%	Nov-89	Apr-90
3	Yes	Yes	Yes	95%	Dec-89	May-90
4	Yes	Yes	Yes	35%	Jun-90	Nov-90
5	No	Yes	No	0%		
6	Yes	Yes	Yes	70%	Jun-89	Nov-89
7	Yes	Yes	Yes	10%		
9	Yes	Yes	Yes	100%	Yes	Yes
10	Yes	Yes	Yes	100%	Yes	Yes
11	Yes	Yes	Yes	15%	Jun-90	Nov-90
12	No	No	No	0%		
13	Yes	Yes	Yes	60%	Feb-90	Jul-90
14	No	No	No	0%		
15	Yes	Yes	Yes	20%		
16	Yes	Yes	No	5%		
Average Percentage of Series Drafted:				45%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from the Senior Series Editor, D. W. Tedder.

NUCLEAR WASTE MANAGEMENT TECHNOLOGY SERIES

EDITOR
D. WILLIAM TEDDER
SCHOOL OF CHEMICAL ENGINEERING
GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332-0100 USA
TELEPHONE: (1-404) 894-2856
TELEX: 542507 GTRI OCA ATL
FAX: 404 894-3120

EDITOR
A.M. PLATT
BATTELLE PACIFIC
NORTHWEST LABORATORY
P.O. BOX 999
RICHLAND, WA 99352 USA
TELEPHONE: (1-509) 375-2273
FAX: 509 376-3876

harwood
academic
publishers

chur
london
paris
new york

NUCLEAR WASTE MANAGEMENT TECHNOLOGY

January 27, 1989

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations
2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management
4. Volume Reduction and Concentration
5. Solidification
6. Decontamination and Decommissioning
7. Assay, Classification, and Effluent Monitoring
9. Treatment of Airborne Wastes
10. Near-Surface Land Disposal
11. Repository Siting and Design
15. Sea Disposal
16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design
13. Systems Analyses, Forecasting, and Data Reduction
14. Environmental Modeling

E-19-684

#14

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period October 1 through December 31, 1989

DE-FG09-86SR15156

E-19-684

January 26, 1990

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. Near-Surface Land Disposal is now published and is being marketed as Volume 1 in the Radioactive Waste Management Handbook.

Volume 2, Chemical Processing Waste, and Volume 11, Repository Siting and Design, are also 100% drafted. They are waiting for DOE approvals to begin outside review and final editing. Volume 2 is being delayed by an UCNI classification on one chapter. This chapter is undergoing internal review at DOE Chicago Operations. Volume 11 is undergoing routine clearance review and is expected to be available shortly. It may be available for outside review by the Tucson meeting.

The final editing for Volume 9, Treatment of Airborne Wastes, is nearing completion. Most of the revisions are completed and authors are checking their contributions. This volume should be available for typesetting in the next few months.

Volume 3, Packaging, Transportation, Storage and Source Management, is also nearing completion in draft form. The volume editor expects to have the complete manuscript available in the near future. It is being delayed by two contributors.

Volume 6, Decommissioning, is nearing completion in draft form. The volume editor, Bill Manion of Nuclear Energy Services, expects to have copies available for review in Tucson.

Volume 13, Systems Analyses, Forecasting, and Data Reduction, is nearing completion in draft form. The volume editor, Ed Johnson of Johnson & Associates, hopes to have copies available for review in Tucson.

Our invitation to serve as volume editor for Volume 5, Solidification, has been tentatively accepted. This new volume editor will be formally announced after he has obtained final approval from his management.

Invitations to participate were also sent to prospective volume editors for Volume 12, Economics and Facilities Design, and Volume 14, Environmental Modeling. The invitation for Volume 14 was declined. The invitation for Volume 12 is still being considered.

Several sections for Volume 7, Assay, Classification, and Effluent Monitoring were scanned and typed at Georgia Tech. Floppy disks have been sent to the volume editor.

Volume 4, Volume Reduction and Concentration, experienced a setback recently. Peter Cheng of HPD Inc. in Naperville, IL was contributing a chapter on "Crystallization, Evaporation, and Freeze Drying." We were saddened to learn that he was recently killed in an airplane accident.

GOALS FOR NEXT QUARTER

Finding volume editors for Volumes 12 and 14 remains as a high priority item.

We are continuing to offer assistance with scanning draft material and in typing documents at Georgia Tech. In this way, we hope to accelerate the rate of draft completion and the final editing process.

We are especially looking forward to the Workshops at Waste Management 90 in Tucson. We will have one volume available for sale this year and we should be able to begin review on several others after the Tucson meeting. Hopefully our progress will be an incentive for those volumes which are behind schedule.

Two workshops will be held in the Orpheum Room of the Tucson Holiday Inn. On Monday, February 26th, we will meet from 6:30 to 7:30 pm. On Tuesday, February 27th, we will meet from 5:00 to 6:00 pm.

The series is now over 50% drafted. However, some volumes are still not progressing as hoped. The future of each is being reconsidered on an individual basis by discussions with the volume editors and the publisher. In some cases, series revisions are appropriate (i.e., two volumes may be condensed into a single volume, etc.) In other cases, a volume may be dropped. In all cases we are taking steps to encourage editors and authors to complete their tasks as quickly as possible.

Distribution: R. Crane, HAP
J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
T. Siolek, GPSP
A. L. Taboas, DOE
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
26-Jan-90

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	70%	Aug-90	Oct-90
2	Yes	Yes	Yes	100%	NEEDS CLEARANCE	
3	Yes	Yes	Yes	95%	Apr-90	Jun-90
4	Yes	Yes	Yes	35%	Dec-90	Mar-91
5	Yes	No	No	0%		
6	Yes	Yes	Yes	85%	Mar-90	May-90
7	Yes	Yes	Yes	5%		
9	Yes	Yes	Yes	100%	IN FINAL EDITING	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	100%	NEEDS CLEARANCE	
12	No	No	No	0%		
13	Yes	Yes	Yes	80%	Mar-90	May-90
14	No	No	No	0%		
15	Yes	No	No	20%		
16	Yes	Yes	No	5%		
Average Percentage of Series Drafted:				53%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

IN FINAL EDITING means draft has been revised. Final editing changes are being made before volume is typeset.

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

January 26, 1990

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations

2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

4. Volume Reduction and Concentration

5. Solidification

6. Decommissioning

7. Assay, Classification, and Effluent Monitoring

9. Treatment of Airborne Wastes

10. Near-Surface Land Disposal

11. Repository Siting and Design

15. Sea Disposal

16. Incineration

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

E-19-684
#15

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period January 1 through March 31, 1990

DE-FG09-86SR15156

E-19-684

May 4, 1990

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached.

Volume 2, Chemical Processing Waste, and Volume 11, Repository Siting and Design, are also 100% drafted. They are still waiting for DOE approvals to begin outside review and final editing. Volume 2 is being delayed by an UCNI classification on one chapter. This chapter is undergoing internal review at DOE Chicago Operations. Volume 11 is still undergoing routine clearance review in Nevada.

The final editing for Volume 9, Treatment of Airborne Wastes, is essentially complete. All revisions are completed, but we are still waiting for a few authors to comment on the revisions. Typesetting can begin on this volume as soon as it is officially launched by the publisher.

Volume 3, Packaging, Transportation, Storage and Source Management, is also nearing completion in draft form. The volume editor expects to have the complete manuscript available in July. It is being delayed by one contributor.

Volume 6, Decommissioning, and Volume 13, Systems Analysis, Forecasting and Data Reduction, are still being held up by several missing chapters. The editors now hope to have complete manuscripts available for review by the end of the summer. Several chapters of Volume 13 were available for review in Tucson.

Chris Chapman, Battelle Northwest Laboratory, has accepted our invitation to serve as volume editor for Volume 5, Solidification. Wayne Hansen, Los Alamos National Laboratory, has accepted our invitation to serve as volume editor for Volume 14, Environmental Modeling. We are still waiting for a decision on the offer that has been extended to edit Volume 12, Economics and Facilities Design.

Workshops were held in Tucson on February 26 and 27. Several modifications to the series resulted from these meetings. Volume 16, Incineration, will be treated as a chapter in Volume 4 rather than an entire volume. A new Volume 17, Emergency Response Management, will be edited by Dr. James Betschart from the waste management group at Oak Ridge.

GOALS FOR NEXT QUARTER

Finding a volume editor for Volume 12 remains as a high priority item. Hopefully we will soon have a decision on the offer that is now being considered.

We are continuing to offer assistance with scanning draft material and in typing documents at Georgia Tech. In this way, we hope to accelerate the rate of draft completion and the final editing process.

The series is now over 50% drafted. However, some volumes are still not progressing as hoped. The future of each is being reconsidered on an individual basis by discussions with the volume editors and the publisher. In some cases, series revisions are appropriate (i.e., two volumes may be condensed into a single volume, etc.) In other cases, a volume may be dropped. In all cases we are taking steps to encourage editors and authors to complete their tasks as quickly as possible.

Distribution: J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
T. Siolek, GBSP
A. L. Taboas, DOE
E. van Valen, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
04-May-90

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	70%	Aug-90	Oct-90
2	Yes	Yes	Yes	100%	NEEDS CLEARANCE	
3	Yes	Yes	Yes	85%	Jul-90	Sep-90
4	Yes	Yes	Yes	30%	Dec-90	Mar-91
5	Yes	No	No	0%		
6	Yes	Yes	Yes	85%	Oct-90	Dec-90
7	Yes	Yes	Yes	5%		
9	Yes	Yes	Yes	100%	IN FINAL EDITING	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	100%	NEEDS CLEARANCE	
12	No	No	No	0%		
13	Yes	Yes	Yes	80%	Aug-90	Oct-90
14	Yes	No	No	0%		
15	Yes	Yes	Yes	20%		
17	Yes	No	No	0%		
Average Percentage of Series Drafted:				52%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

IN FINAL EDITING means draft has been revised. Final editing changes are being made before volume is typeset.

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

May 4, 1990

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations

2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

4. Volume Reduction and Concentration

5. Solidification

6. Decommissioning

7. Assay, Classification, and Effluent Monitoring

9. Treatment of Airborne Wastes

10. Near-Surface Land Disposal

11. Repository Siting and Design

15. Sea Disposal

17. Emergency Response Management

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

E-19-684
#16

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period April 1 through June 30, 1990

DE-FG09-86SR15156

E-19-684

July 27, 1990

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached.

Volume 2, Chemical Processing Waste, and Volume 11, Repository Siting and Design, are 100% drafted. They are still waiting for DOE approvals to begin outside review and final editing. Volume 2 is being delayed by an UCNI classification on one chapter. We are considering alternatives for expediting this volume. Volume 11 is still undergoing routine clearance review in Nevada.

Volume 9, Treatment of Gaseous Effluents, is in production. Page proofs should be available for review in a matter of weeks.

Volume 3, Packaging, Transportation, Storage and Source Management, is nearly complete except for one contribution. The volume editor now expects to have the complete manuscript available in October.

Volume 6, Decommissioning, and Volume 13, Systems Analysis, Forecasting and Data Reduction, are still being held up by several missing chapters. The editors now hope to have complete manuscripts available for review by the end of the summer.

We are still waiting for a decision on the offer that has been extended to edit Volume 12, Economics and Facilities Design. The editor for Volume 7, Assay, Classification, and Effluent Monitoring, has resigned.

Dr. James Betschart, Roane State Community College, has agreed to edit Volume 17, Emergency Response Management. We are excited about this new contribution.

GOALS FOR NEXT QUARTER

Finding a volume editor for Volumes 7 and 12 are high priority items. Hopefully we will soon have a decision on the offer that is now being considered. Leads are being pursued for a new editor for Volume 7.

We hope to review the page proofs for Volume 9 and to send this volume to publication this quarter.

The future of each volume is being reconsidered on an individual basis. In some cases, series revisions are appropriate (i.e., two volumes may be condensed into a single volume, etc.) In other cases, a volume may be dropped. In all cases we are taking steps to encourage editors and authors to complete their tasks as quickly as possible.

Distribution: J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
T. Siolek, GBSP
A. L. Taboas, DOE
E. van Valen, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
27-Jul-90

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	70%	Aug-90	Oct-90
2	Yes	Yes	Yes	100%	NEEDS CLEARANCE	
3	Yes	Yes	Yes	85%	Jul-90	Sep-90
4	Yes	Yes	Yes	30%	Dec-90	Mar-91
5	Yes	No	No	0%		
6	Yes	Yes	Yes	85%	Oct-90	Dec-90
7	No	No	No	0%		
9	Yes	Yes	Yes	100%	IN FINAL EDITING	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	100%	NEEDS CLEARANCE	
12	No	No	No	0%		
13	Yes	Yes	Yes	80%	Aug-90	Oct-90
14	Yes	No	No	0%		
15	Yes	Yes	Yes	20%		
17	Yes	Yes	No	0%		
Average Percentage of Series Drafted:				51%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

IN FINAL EDITING means draft has been revised. Final editing changes are being made before volume is typeset.

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

May 4, 1990

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations

2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

4. Volume Reduction and Concentration

5. Solidification

6. Decommissioning

7. Assay, Classification, and Effluent Monitoring

9. Treatment of Gaseous Effluents

10. Near-Surface Land Disposal

11. Repository Siting and Design

15. Sea Disposal

17. Emergency Response Management

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

E-19-684
#17

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period July 1 through September 30, 1990

DE-FG09-86SR15156

E-19-684

October 31, 1990

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached.

Volume 2, Chemical Processing Waste, and Volume 11, Repository Siting and Design, are 100% drafted. They are still waiting for DOE approval to begin outside review and final editing. Volume 2 is being delayed by an UCNI classification on one chapter. Because of this difficulty, this chapter is being deleted. Volumes 1 and 2 are being combined into a single volume "Mining, Reactor, and Reprocessing". Volume 11 is still undergoing routine clearance review in Nevada.

Page proofs for Volume 9, Treatment of Gaseous Effluents, were sent out for final review this quarter. Most of the authors have returned their page proofs; minor changes were required and the final typeset copy will be submitted to the publisher within a few weeks. This volume is about 420 pages in length.

Volume 3, Packaging, Transportation, Storage and Source Management, is still being held up by one contributor. The volume editor now expects to have the complete manuscript available in December.

Volume 6, Decommissioning, and Volume 13, Systems Analysis, Forecasting and Data Reduction, are still being held up by several missing chapters. The editors now hope to have complete manuscripts available for review by December and February 91.

The invitation to edit Volume 12, Economics and Facilities Design, was declined. An editor is also needed for Volume 7, Assay, Classification, and Effluent Monitoring. However, Dr. James Lovett has agreed to contribute Volume 16, "International Safeguards." This volume will be a revision and update of his earlier edition on this subject.

GOALS FOR NEXT QUARTER

Finding volume editors for Volumes 7 and 12 are high priority items. Leads are still being pursued.

We hope to review the page proofs for one of the volumes that are drafted this quarter. The reasons for the delays on Volume 12 are unclear.

We are coordinating with the International Atomic Energy Agency in Vienna to advertise the series within the European Community. They have expressed interest in the series and are willing to assist in review. We are also making preparations for the workshops to be held in Tucson, Arizona during Waste Management 91.

Distribution: J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
E. van Valen, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
02-Nov-90

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	80%	Dec-90	Mar-91
2	Yes	Yes	Yes	100%	NEEDS CLEARANCE	
3	Yes	Yes	Yes	85%	Dec-90	Mar-91
4	Yes	Yes	Yes	40%	Sep-91	Nov-91
5	Yes	Yes	No	0%		
6	Yes	Yes	Yes	85%	Dec-90	Mar-91
7	No	No	No	0%		
9	Yes	Yes	Yes	100%	IN PRODUCTION	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	100%	NEEDS CLEARANCE	
12	No	No	No	0%		
13	Yes	Yes	Yes	80%	Feb-91	May-91
14	Yes	No	No	0%		
15	Yes	Yes	Yes	20%		
16	Yes	Yes	Yes	50%		
17	Yes	Yes	No	0%		
Average Percentage of Series Drafted:				53%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

IN FINAL EDITING means draft has been revised. Final editing changes are being made before volume is typeset.

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

September 10, 1990

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations

2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

4. Volume Reduction and Concentration

5. Solidification

6. Decommissioning

7. Assay, Classification, and Effluent Monitoring

9. Treatment of Gaseous Effluents

10. Near-Surface Land Disposal

11. Repository Siting and Design

15. Sea Disposal

16. International Safeguards

17. Emergency Response Management

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

E-19-684
#18

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period October 1 through December 31, 1990

DE-FG09-86SR15156

E-19-684

January 31, 1991

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. The series is about 50% drafted.

A draft of Volume 11, "Repository Siting and Design at Yucca Mountain," has been received and is being submitted for independent review. It is an in-depth case study of the Yucca Mountain program. We expect to begin production in the near future.

Volumes 1, 2 and 4 are being reorganized. Currently available chapters are being combined into a single volume. Tentatively, this volume will be titled, "Mining, Reactor, and Reprocessing Operations." This strategy will enable us to move ahead with the production of a fourth volume without further delays. Contributions to the original volumes that are not included in this new volume will be incorporated into future volumes as they become available.

Volume 9, "Treatment of Gaseous Effluents at Nuclear Facilities," is being printed. This is the second volume completed in the series. We expect that examination copies will be available at Waste Management 91 in Tucson.

A draft of Volume 6, "Decommissioning," has been promised for the meeting in Tucson.

GOALS FOR NEXT QUARTER

Finding volume editors for Volumes 7 and 12 are high priority items. Leads are being pursued.

We expect to complete the review of Volume 11, "Repository Siting and Design at Yucca Mountain," and to begin production. We hope to complete the review of Volume 6, "Decommissioning."

Workshops will be held at Waste Management 91 in Tucson on Monday and Tuesday afternoons, February 25 and 26, after the regularly scheduled technial sessions. Copies of Volumes 1 and 2 will be available for examination. All participants are encouraged to attend and work together to resolve problems and expedite the completion of the series.

Distribution: J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
E. van Valen, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

January 31, 1991

Edited by

D. W. Tedder and A. M. Platt

The series is organized into three major categories and 15 volumes.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Uranium Exploration, Mining, Milling, Fuel Preparation and Reactor Operations

2. Chemical Processing Wastes

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

4. Volume Reduction and Concentration

5. Solidification

6. Decommissioning

7. Assay, Classification, and Effluent Monitoring

9. Treatment of Gaseous Effluents at Nuclear Facilities

10. Near-Surface Land Disposal

11. Repository Siting and Design at Yucca Mountain

15. Sea Disposal

16. International Safeguards

17. Emergency Response Management

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
31-Jan-91

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	90%	IN REVISION	
2	Yes	Yes	Yes	100%	IN REVISION	
3	Yes	Yes	Yes	90%	Jun-91	Aug-91
4	Yes	Yes	Yes	40%	IN REVISION	
5	Yes	Yes	Yes	0%	Feb-92	May-92
6	Yes	Yes	Yes	100%	Mar-91	May-91
7	No	No	No	0%		
9	Yes	Yes	Yes	100%	PUBLISHED IN 1991	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	100%	IN REVIEW	
12	No	No	No	0%		
13	Yes	Yes	Yes	80%	Feb-91	May-91
14	Yes	Yes	Yes	5%	Jul-91	Sep-91
15	Yes	Yes	Yes	20%		
16	Yes	Yes	Yes	20%	Sep-91	Nov-91
17	Yes	Yes	No	0%		
Average Percentage of Series Drafted:				53%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

IN FINAL EDITING means draft has been revised. Final editing changes are being made before volume is typeset.

E-19-684
#19

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period January 1 through March 31, 1991

DE-FG09-86SR15156

E-19-684

April 31, 1991

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. The series is about 50% drafted.

Workshops were held February 25 and 26 in Tucson, Arizona at Waste Management '91. The handbook status was reviewed and problems relating to specific volumes were addressed. Our publisher operated a booth where our two volumes in print, "Near-Surface Land Disposal," and "Treatment of Gaseous Effluents at Nuclear Facilities" were available on display.

Draft B of Volume 11, "Repository Siting and Design at Yucca Mountain," was discussed at length. It was decided that major revisions are still needed before this volume can go into production. Current plans call for Mac Technical Services in Las Vegas to lead this effort and to complete it by September 1991.

Volumes 1, 2 and 4 have been combined to form Volumes 1 and 2 in the current list of volume titles. This division is designed to expedite publication of contributions currently in hand and provide a more logical flow to Volume 1. Production of Volume 2, "Chemical Separations and Treatment," has begun and is scheduled for completion by September 1991.

Dick Wallace from Savannah River Laboratory, and co-editor with Wally Schulz of Volume 2, passed away and is greatly missed. His contribution will be included in the revised Volume 2 and is excellent. The volume will be dedicated to his memory.

A draft of Volume 6, "Decommissioning," was not provided at the meeting in Tucson. We are still waiting for the opportunity to begin review. A partial draft of Volume 13, "Systems Engineering," was received in Tucson and is in review.

GOALS FOR NEXT QUARTER

Finding volume editors for Volumes 7 and 12 remain as high priority items. Leads are still being pursued. Several suggestions were provided at the Tucson meeting.

We expect to complete the reorganization of Volume 11, "Repository Siting and Design at Yucca Mountain." We hope to complete production of Volume 2.

Distribution: J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
E. van Valen, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
07-May-91

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	60%	IN REVISION	
2	Yes	Yes	Yes	100%	IN PRODUCTION	
3	Yes	Yes	Yes	90%	Jun-91	Aug-91
5	Yes	Yes	Yes	0%	Feb-92	May-92
6	Yes	Yes	Yes	90%	Jun-91	Aug-91
7	No	No	No	0%		
9	Yes	Yes	Yes	100%	PUBLISHED IN 1991	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	50%	IN REVISION	
12	No	No	No	0%		
13	Yes	Yes	Yes	100%	IN REVIEW	
14	Yes	Yes	Yes	5%	Dec-92	Mar-93
15	Yes	Yes	Yes	40%		
16	Yes	Yes	Yes	30%	Dec-91	Feb-92
17	Yes	Yes	No	0%		
Average Percentage of Series Drafted:				51%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

May 1, 1991

Edited by

D. W. Tedder and A. M. Platt

The handbook is organized into 15 volumes in preparation. Volumes are renumbered when published.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Historical and Contemporary Technologies for the Exploration, Mining, and Milling of Uranium

2. Chemical Separations and Treatment

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

5. Solidification

6. Decommissioning

7. Assay, Classification, and Effluent Monitoring

9. Treatment of Gaseous Effluents at Nuclear Facilities (Published as Vol 2, 1991)

10. Near-Surface Land Disposal (Published as Vol 1, 1989)

11. Repository Siting and Design at Yucca Mountain

15. Sea Disposal

16. International Safeguards

17. Emergency Response Management

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

E-19-684
A20

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period April 1 through June 30, 1991

DE-FG09-86SR15156

E-19-684

July 31, 1991

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. The series is about 53% drafted.

The status of Volume 11, "Repository Siting and Design at Yucca Mountain," is still unresolved. The preliminary cost estimates provided by Mac Tech exceed budget constraints and alternatives are being evaluated. This volume is of critical importance to the entire handbook, but it must be well done or the effort will be counterproductive.

Volume 2, "Chemical Separations and Treatment," is in production. Page proofs were scheduled to be available by September 1991, but October or November is more likely.

We are still waiting to receive a draft of Volume 6, "Decommissioning," from Nuclear Energy Services.

GOALS FOR NEXT QUARTER

Finding volume editors for Volumes 7 and 12 remain as high priority items. Leads are being pursued.

We hope to finalize the reorganization of Volume 11, "Repository Siting and Design at Yucca Mountain," and to set a reasonable schedule for its completion. We also hope to complete production of Volume 2.

Distribution: J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
E. van Valen, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

July 31, 1991

Edited by

D. W. Tedder and A. M. Platt

The handbook is organized into 15 volumes in preparation. Volumes are renumbered when published.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Historical and Contemporary Technologies for the Exploration, Mining, and Milling of Uranium

2. Chemical Separations and Treatment

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

5. Solidification

6. Decommissioning

7. Assay, Classification, and Effluent Monitoring

9. Treatment of Gaseous Effluents at Nuclear Facilities (Published as Vol 2, 1991)

10. Near-Surface Land Disposal (Published as Vol 1, 1989)

11. Repository Siting and Design at Yucca Mountain

15. Sea Disposal

16. International Safeguards

17. Emergency Response Management

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
31-Jul-91

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	60%	IN REVISION	
2	Yes	Yes	Yes	100%	IN PRODUCTION	
3	Yes	Yes	Yes	90%	Aug-91	Oct-91
5	Yes	Yes	Yes	0%	Feb-92	May-92
6	Yes	Yes	Yes	90%	Aug-91	Oct-91
7	No	No	No	0%		
9	Yes	Yes	Yes	100%	PUBLISHED IN 1991	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	50%	IN REVISION	
12	No	No	No	0%		
13	Yes	Yes	Yes	100%	IN REVIEW	
14	Yes	Yes	Yes	20%	Dec-92	Mar-93
15	Yes	Yes	Yes	40%		
16	Yes	Yes	Yes	40%	Dec-91	Feb-92
17	Yes	Yes	No	0%		
Average Percentage of Series Drafted:				53%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

E19-684
#21

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY

TECHNICAL PROGRESS REPORT

For the Period July 1 through September 30, 1991

DE-FG09-86SR15156

E-19-684

October 31, 1991

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. The series is about 56% drafted.

Volume 11, "Repository Siting and Design at Yucca Mountain," has been delayed due to budget cutbacks in the Yucca Mountain Project. Also, the preliminary design outlined in the draft volume now in hand are obsolete. We hope that work will resume on this volume during next fiscal year.

Volume 2, "Chemical Separations and Treatment," is still in production. Several chapters have been typeset while others are in revision. We hope a complete set of page proofs will be available in January 1992.

We are still waiting to receive a draft of Volume 6, "Decommissioning," from Nuclear Energy Services.

Volume 17, "Emergency Response Management," has been dropped due to the resignation of the editor.

GOALS FOR NEXT QUARTER

Finding volume editors for Volumes 7 and 12 remain as high priority items. Leads are still being pursued.

We hope to complete production of Volume 2.

Distribution: J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
D. Packer, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

October 31, 1991

Edited by

D. W. Tedder and A. M. Platt

The handbook is organized into 14 volumes in preparation. Volumes are renumbered when published.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Historical and Contemporary Technologies for the Exploration, Mining, and Milling of Uranium

2. Chemical Separations and Treatment

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

5. Solidification

6. Decommissioning

7. Assay, Classification, and Effluent Monitoring

9. Treatment of Gaseous Effluents at Nuclear Facilities (Published as Vol 2, 1991)

10. Near-Surface Land Disposal (Published as Vol 1, 1989)

11. Repository Siting and Design at Yucca Mountain

15. Sea Disposal

16. International Safeguards

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

12. Economics and Facilities Design

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
31-Oct-91

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	60%	IN REVISION	
2	Yes	Yes	Yes	100%	IN PRODUCTION	
3	Yes	Yes	Yes	90%	Aug-91	Oct-91
5	Yes	Yes	Yes	0%	Feb-92	May-92
6	Yes	Yes	Yes	90%	Aug-91	Oct-91
7	No	No	No	0%		
9	Yes	Yes	Yes	100%	PUBLISHED IN 1991	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	50%	IN REVISION	
12	No	No	No	0%		
13	Yes	Yes	Yes	100%	IN REVIEW	
14	Yes	Yes	Yes	20%	Dec-92	Mar-93
15	Yes	Yes	Yes	40%		
16	Yes	Yes	Yes	40%	Dec-91	Feb-92
Average Percentage of Series Drafted:				56%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

E 19-684
#22

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY
TECHNICAL PROGRESS REPORT
For the Period October 1 through December 31, 1991

DE-FG09-86SR15156
E-19-684
January 30, 1992

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. The series is about 72% drafted.

Volume 11, "Repository Siting and Design at Yucca Mountain," will be delayed for at least another year due to budget cutbacks in the Yucca Mountain Project.

Volume 2, "Chemical Separations and Treatment," is in production. We hope a complete set of page proofs will be available in April 1992.

Volume 7, "Assay, Classification, and Effluent Monitoring," Volume 12, "Economics and Facilities Design," and Volume 15, "Sea Disposal" are being dropped from the Series due to lack of progress and interest.

GOALS FOR NEXT QUARTER

The remaining volumes which are less than 60% drafted will be reorganized and combined into a more suitable format to expedite completion of the remaining volumes. This reorganization will be carried out in consultation with those editors and contributors who are still actively involved. We plan to make most of these decisions during Waste Management 92 in Tucson.

As in previous years, Workshops will be held on Monday and Tuesday afternoons (March 2 & 3) in the Orpheum Room of the Holiday Inn, Tucson, AZ from 5-6pm. All interested parties are invited to participate.

Distribution:
J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
D. Packer, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
03-Feb-92

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	60%	IN REVISION	
2	Yes	Yes	Yes	100%	IN PRODUCTION	
3	Yes	Yes	Yes	90%	Jun-92	Aug-92
5	Yes	Yes	Yes	20%	Sep-92	Nov-92
6	Yes	Yes	Yes	90%	Jun-92	Aug-92
9	Yes	Yes	Yes	100%	PUBLISHED IN 1991	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	50%	IN REVISION	
13	Yes	Yes	Yes	100%	IN REVIEW	
14	Yes	Yes	Yes	20%	Dec-92	Mar-93
16	Yes	Yes	Yes	60%	Jun-92	Aug-92
Average Percentage of Series Drafted:				72%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

January 30, 1992

Edited by

D. W. Tedder and A. M. Platt

The handbook is organized into 11 volumes in preparation. Volumes are renumbered when published.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Historical and Contemporary Technologies for the Exploration, Mining, and Milling of Uranium

2. Chemical Separations and Treatment

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

5. Solidification

6. Decommissioning

9. Treatment of Gaseous Effluents at Nuclear Facilities (Published as Vol 2, 1991)

10. Near-Surface Land Disposal (Published as Vol 1, 1989)

11. Repository Siting and Design at Yucca Mountain

16. International Safeguards

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

E 19-684
#23.

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY
TECHNICAL PROGRESS REPORT
For the Period January 1 through March 31, 1992

DE-FG09-86SR15156
E-19-684
April 31, 1992

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. The series is about 72% drafted.

Volume 2, "Chemical Separations and Treatment," is in production. We hope a complete set of page proofs will be available in July 1992.

Workshops were held in Tucson on March 2 and 3 at Waste Mangement '92.

GOALS FOR NEXT QUARTER

Volumes which are not being expedited will be reorganized and consolidated. This reorganization will continue through this quarter.

Distribution: J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
D. Packer, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

January 30, 1992

Edited by

D. W. Tedder and A. M. Platt

The handbook is organized into 11 volumes in preparation. Volumes are renumbered when published.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Historical and Contemporary Technologies for the Exploration, Mining, and Milling of Uranium

2. Chemical Separations and Treatment (Published as Vol 3, 1992)

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

5. Solidification

6. Decommissioning

9. Treatment of Gaseous Effluents at Nuclear Facilities (Published as Vol 2, 1991)

10. Near-Surface Land Disposal (Published as Vol 1, 1989)

11. Repository Siting and Design at Yucca Mountain

16. International Safeguards

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
12-May-92

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	60%	IN REVISION	
2	Yes	Yes	Yes	100%	IN PRODUCTION	
3	Yes	Yes	Yes	90%	Jun-92	Aug-92
5	Yes	Yes	Yes	20%	Sep-92	Nov-92
6	Yes	Yes	Yes	90%	Jun-92	Aug-92
9	Yes	Yes	Yes	100%	PUBLISHED IN 1991	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	50%	IN REVISION	
13	Yes	Yes	Yes	100%	IN REVIEW	
14	Yes	Yes	Yes	20%	Dec-92	Mar-93
16	Yes	Yes	Yes	60%	Jun-92	Aug-92
Average Percentage of Series Drafted:				72%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

E19-684 #24

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY
TECHNICAL PROGRESS REPORT
For the Period April 1 through June 30, 1992

DE-FG09-86SR15156
E-19-684
July 31, 1992

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. The series is about 72% drafted.

Volume 2, "Chemical Separations and Treatment," is in production. We hope a complete set of page proofs will be available in September 1992.

An offer has been extended to edit a new Volume 7, "Repository Siting and Design." This volume will complement Volume 11, "Repository Development at Yucca Mountain" which is essentially a case study of that site. Volume 7 will address the more general and fundamental aspects of respository siting.

GOALS FOR NEXT QUARTER

Volumes which are not being expedited will be reorganized and consolidated. This reorganization will continue through this quarter.

Distribution: J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
D. Packer, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
28-Aug-92

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	60%	IN REVISION	
2	Yes	Yes	Yes	100%	IN PRODUCTION	
3	Yes	Yes	Yes	90%	Jun-92	Aug-92
5	Yes	Yes	Yes	20%	Sep-92	Nov-92
6	Yes	Yes	Yes	90%	Jun-92	Aug-92
9	Yes	Yes	Yes	100%	PUBLISHED IN 1991	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	50%	IN REVISION	
13	Yes	Yes	Yes	100%	IN REVIEW	
14	Yes	Yes	Yes	20%	Dec-92	Mar-93
16	Yes	Yes	Yes	60%	Jun-92	Aug-92
Average Percentage of Series Drafted:				72%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

(Current Volume Outline)

June 19, 1992

Edited by

D. W. Tedder and A. M. Platt

The handbook is organized into 11 volumes in preparation. Volumes are renumbered when published.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Historical and Contemporary Technologies for the Exploration, Mining, and Milling of Uranium

2. Chemical Separations and Treatment (Published as Vol 3, 1992)

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

5. Solidification

6. Decommissioning

7. Repository Siting and Design

9. Treatment of Gaseous Effluents at Nuclear Facilities (Published as Vol 2, 1991)

10. Near-Surface Land Disposal (Published as Vol 1, 1989)

11. Repository Development at Yucca Mountain

16. International Safeguards

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

E-19-684
#25

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY
TECHNICAL PROGRESS REPORT
For the Period July 1 through September 30, 1992

DE-FG09-86SR15156
E-19-684
October 30, 1992

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. The series is about 66% drafted.

Volume 2, "Chemical Separations and Treatment," is in production. We hope a complete set of page proofs will be available in December 1992.

An offer has been accepted to edit a new Volume 7, "Repository Siting and Design." The editors are Dr. Peter Brennecke, Bundesamt fur Strahlenschutz, and Dr. Ernst Warnecke, International Atomic Energy Agency. This volume will complement Volume 11, "Repository Development at Yucca Mountain." Volume 7 will address the more general and fundamental aspects of respository siting and final disposal. We look forward to rapid development of this key volume for the series.

GOALS FOR NEXT QUARTER

Volumes which are not being expedited will be reorganized and consolidated. This reorganization will continue through this quarter. Editors are being asked to consider consolidation with other volumes if progress is not being made on completing their contributions.

Distribution: J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
D. Packer, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)
All Volume Editors

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

(Current Volume Outline)

June 19, 1992

Edited by

D. W. Tedder and A. M. Platt

The handbook is organized into 11 volumes in preparation. Volumes are renumbered when published.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Historical and Contemporary Technologies for the Exploration, Mining, and Milling of Uranium

2. Chemical Separations and Treatment (Published as Vol 3, 1992)

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

5. Solidification

6. Decommissioning

7. Repository Siting and Design

9. Treatment of Gaseous Effluents at Nuclear Facilities (Published as Vol 2, 1991)

10. Near-Surface Land Disposal (Published as Vol 1, 1989)

11. Repository Development at Yucca Mountain

16. International Safeguards

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
30-Sept-92

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	60%	IN REVISION	
2	Yes	Yes	Yes	100%	IN PRODUCTION	
3	Yes	Yes	Yes	90%	Jun-92	Aug-92
5	Yes	Yes	Yes	20%	Sep-92	Nov-92
6	Yes	Yes	Yes	90%	Jun-92	Aug-92
7	Yes	No	No	0%		
9	Yes	Yes	Yes	100%	PUBLISHED IN 1991	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	50%	IN REVISION	
13	Yes	Yes	Yes	100%	IN REVIEW	
14	Yes	Yes	Yes	20%	Dec-92	Mar-93
16	Yes	Yes	Yes	60%	Jun-92	Aug-92
Average Percentage of Series Drafted:				66%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

E 19-684 #26

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY
TECHNICAL PROGRESS REPORT
For the Period October 1 through December 31, 1992

DE-FG09-86SR15156
E-19-684
January 30, 1993

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. The series is about 67% drafted.

Volume 2, "Chemical Separations and Treatment," is in production. We hope a complete set of page proofs will be available by June 1993.

GOALS FOR NEXT QUARTER

We are making plans for workshops to be held at Waste Management 93 in Tucson. These workshops are scheduled for Monday and Tuesday afternoons, March 1-2. A flyer describing these meetings is attached.

Distribution:
A. Butcher, GBSP
J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
D. Packer, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)
All Volume Editors

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

(Current Volume Outline)

January 30, 1993

Edited by

D. W. Tedder and A. M. Platt

The handbook is organized into 11 volumes in preparation. Volumes are renumbered when published.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Historical and Contemporary Technologies for the Exploration, Mining, and Milling of Uranium

2. Chemical Separations and Treatment (Published as Vol 3, 1993)

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

5. Solidification

6. Decommissioning

7. Repository Siting and Design

9. Treatment of Gaseous Effluents at Nuclear Facilities (Published as Vol 2, 1991)

10. Near-Surface Land Disposal (Published as Vol 1, 1989)

11. Repository Development at Yucca Mountain

16. International Safeguards

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
30-Jan-93

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	60%	IN REVISION	
2	Yes	Yes	Yes	100%	IN PRODUCTION	
3	Yes	Yes	Yes	90%	Jun-93	Aug-93
5	Yes	Yes	Yes	20%	Sep-93	Nov-93
6	Yes	Yes	Yes	90%	Jun-93	Aug-93
7	Yes	No	No	0%		
9	Yes	Yes	Yes	100%	PUBLISHED IN 1991	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	50%	IN REVISION	
13	Yes	Yes	Yes	100%	IN REVIEW	
14	Yes	Yes	Yes	20%	Dec-93	Mar-94
16	Yes	Yes	Yes	70%	Jun-93	Aug-93
Average Percentage of Series Drafted:				67%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

WORKSHOPS MEETING IN THE ORPHEUM ROOM AT THE HOLIDAY INN, TUCSON, ARIZONA DURING WASTE MANAGEMENT '93 MARCH MARCH 1–2, 1993

All Interested Parties are Invited:

Monday	March 1st	5–6 pm
Tuesday	March 2nd	5–6 pm

Volume 1, *Near-Surface Land Disposal*, J. H. Kittel (ed) and Volume 2, *Treatment of Gaseous Effluents at Nuclear Facilities*, W. R. A. Goossens, G. G. Eichholz and D. W. Tedder (eds) will be available for examination. The series is now over 50% drafted. All visitors are welcome.

Discussion topics will include an update of each volume's status and actions that are needed to complete the series. Volume editors should provide current outlines. Authors should submit contributions to their respective volume editors as soon as possible.

These meetings are important opportunities to improve our team effort. Previous workshops have been very helpful. Contributors should make every effort to attend or else send a representative. The Orpheum Room is located in the lower level of the Holiday Inn. Signs will be posted.

For more information, write to D. W. Tedder, School of Chemical Engineering, Georgia Institute of Technology, Atlanta, GA 30332-0100. Call (404) 894-2856. FAX communications to (404) 894-2866.

E19-684
#27

DOCUMENTATION OF NUCLEAR WASTE MANAGEMENT TECHNOLOGY
TECHNICAL PROGRESS REPORT
For the Period January 1 through March 31, 1993

DE-FG09-86SR15156
E-19-684
April 30, 1993

D. W. Tedder
School of Chemical Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0100

CURRENT STATUS

The current status of all volumes is summarized in the attached Status Summary Table. A current list of volume titles is also attached. The series is about 72% drafted.

Volume 2, "Chemical Separations and Treatment," is in production. We hope a complete set of page proofs will be available by August 1993.

Workshops were held at Waste Mangement 93 in Tucson. During that time we met with editors and authors, and met our new editors on Volume 7.

Volume 14, Environmental Modeling, is being dropped from the series. The editor was forced to resign to due changes in his job assignment; this particular volume is non-essential as numerous books on this topic are now available.

GOALS FOR NEXT QUARTER

We are continuing to assess strategies for consolidating and expediting the remaining volumes. The completion of Volume 2, Chemical Separations and Treatment, is receiving top priority.

Distribution:
A. Butcher, GBSP
J. Geiger, SRO
R. W. Rousseau, GIT
A. M. Platt, PNL
A. L. Taboas, DOE
D. Packer, GBSP
OCA Reports Coordinator, PPC (2 copies)
U.S. DOE, CSD, SRO (2 copies)
All Volume Editors

RADIOACTIVE WASTE MANAGEMENT HANDBOOK

(Current Volume Outline)

January 30, 1993

Edited by

D. W. Tedder and A. M. Platt

The handbook is organized into 11 volumes in preparation. Volumes are renumbered when published.

I. PRIMARY WASTE PRODUCTION AND CHARACTERISTICS

1. Historical and Contemporary Technologies for the Exploration, Mining, and Milling of Uranium

2. Chemical Separations and Treatment (Published as Vol 3, 1993)

II. WASTE MANAGEMENT OPERATIONS

3. Packaging, Transportation, Storage and Source Management

5. Solidification

6. Decommissioning

7. Repository Siting and Design

9. Treatment of Gaseous Effluents at Nuclear Facilities (Published as Vol 2, 1991)

10. Near-Surface Land Disposal (Published as Vol 1, 1989)

11. Repository Development at Yucca Mountain

16. International Safeguards

III. WASTE PROCESS DESIGN AND SYSTEM INTEGRATION

13. Systems Analyses, Forecasting, and Data Reduction

14. Environmental Modeling

RADIOACTIVE WASTE MANAGEMENT HANDBOOK
D. W. Tedder and A. M. Platt
Series Editors
30-April-93

STATUS SUMMARY

Volume Number	Editor Selected	Outline Complete	Authors Selected	Percent Drafted	Draft Available	Review Completed
1	Yes	Yes	Yes	60%	IN REVISION	
2	Yes	Yes	Yes	100%	IN PRODUCTION	
3	Yes	Yes	Yes	90%	Jun-93	Aug-93
5	Yes	Yes	Yes	30%	Sep-93	Nov-93
6	Yes	Yes	Yes	90%	Jun-93	Aug-93
7	Yes	No	No	0%		
9	Yes	Yes	Yes	100%	PUBLISHED IN 1991	
10	Yes	Yes	Yes	100%	PUBLISHED IN 1989	
11	Yes	Yes	Yes	50%	IN REVISION	
13	Yes	Yes	Yes	100%	IN REVIEW	
16	Yes	Yes	Yes	75%	Jun-93	Aug-93
Average Percentage of Series Drafted:				72%		

Notes: The current Volume Numbers are for working purposes only. The volumes will be renumbered in the order that they are actually published.

Harwood Academic Publisher estimates that volumes will be published five to eight months from that time at which the final, reviewed manuscripts are received from D. W. Tedder.

NEEDS CLEARANCE means draft is waiting for DOE approval to begin outside review and editing.

E-19-684
n/a

Georgia Tech

Office of Grants and Contracts Accounting

Georgia Institute of Technology
Lyman Hall/Emerson Building
Atlanta, Georgia 30332-0259
404•894•4624; 2629
Fax: 404•894•5519

December 14, 1989

Ronald D. Simpson
C&P Branch, C&S Division
U. S. Department of Energy
Savannah River Operations Office
P. O. Box A
Aiken, SC 29802

REFERENCE: Grant No. DE-FG09-86SR15156

Dear Mr. Simpson,

Enclosed is an original plus one (1) copy of the Financial Status Report (Form SF-269) for Grant No. DE-FG09-86SR15156 covering the period September 30, 1988 through September 29, 1989.

If you have any questions or require additional information, please contact Geraldine Reese or me at (404) 894-2629.

Sincerely,

David V. Welch
Director

DVW/GMR/djt

Enclosure

:c: Ms. Mary Wolfe, OCA/CSD 0420
File E-19-684/R6223-0A0

FINANCIAL STATUS REPORT

(Short Form)

(Follow instructions on the back)

1. Federal Agency and Organizational Element to Which Report is Submitted	2. Federal Grant or Other Identifying Number Assigned By Federal Agency	OMB Approval No.	Page	of
U. S. Department of Energy	DE-FG09-86SR15156	0348-0039	1	1 pages

3. Recipient Organization (Name and complete address, including ZIP code)

Georgia Tech Research Corporation
P. O. Box 100117
Atlanta, GA 30384

4. Employer Identification Number	5. Recipient Account Number or Identifying Number	6. Final Report	7. Basis
58-0603146	E-19-684/R6223-0A0	☐ Yes ☒ No	☒ Cash ☐ Accrual

8. Funding/Grant Period (See Instructions) From: (Month, Day, Year)	To: (Month, Day, Year)	9. Period Covered by this Report From: (Month, Day, Year)	To: (Month, Day, Year)
September 30, 1986	March 29, 1990	September 30, 1988	September 29, 1989

10. Transactions:	I Previously Reported	II This Period	III Cumulative
a. Total outlays	27,310.89	7,705.77	35,016.66
b. Recipient share of outlays	N/A	N/A	N/A
c. Federal share of outlays	27,310.89	7,705.77	35,016.66
d. Total unliquidated obligations			-0-
e. Recipient share of unliquidated obligations			-0-
f. Federal share of unliquidated obligations			-0-
g. Total Federal share *(Sum of lines c and f)*			35,016.66
h. Total Federal funds authorized for this funding period			50,000.00
i. Unobligated balance of Federal funds *(Line h minus line g)*			14,983.34

11. Indirect Expense

a. Type of Rate *(Place "X" in appropriate box)* ☐ Provisional ☐ Predetermined ☐ Final ☒ Fixed

b. Rate	c. Base	d. Total Amount	e. Federal Share
See Attached	MTDC	$13,210.77	$13,210.77

12. *Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation.*

Questions pertaining to this report should be directed to:
Geraldine Reese (404) 894-2629

GEORGIA TECH'S FISCAL YEAR ENDS JUNE 30.

13. Certification: **I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays and unliquidated obligations are for the purposes set forth in the award documents.**

Typed or Printed Name and Title	Telephone (Area code, number and extension)
David V. Welch, Director Office of Grants and Contracts Accounting	(404) 894-2629
Signature of Authorized Certifying Official	**Date Report Submitted**
	December 14, 1989

Previous Editions not Usable

Standard Form 269A (REV 4-88)
Prescribed by OMB Circulars A-102 and A-110

Attachment
U. S. Department of Energy
Grant No. DE-FG09-86SR15156
E-19-684/R6223-0A0

	Direct Costs	Indirect Costs
FY'87 @ 63.5% Fixed	$ 3,623.82	$ 2,301.13
FY'88 @ 60.0% Fixed	5,821.16	3,492.70
FY'89 @ 60.0% Fixed	12,344.67	7,406.79
FY'90 @ 62.5% Fixed	16.24	10.15

REPORT PERIOD

	Direct Costs	Indirect Costs
09/30/88 - 06/30/89	$ 4,799.62	$ 2,879.76
07/01/89 - 09/29/89	16.24	10.15

Georgia Tech

E-19-684
n/a

Office of Grants and Contracts Accounting

Georgia Institute of Technology
Hinman Building
Atlanta, Georgia 30332-0259
404•894•4624; 2629
Fax: 404•894•5519

November 5, 1990

Ronald D. Simpson
C & P Branch, C & S Division
U. S. Department of Energy
Savannah River Operations Office
P. O. Box A
Aiken, SC 29802

REFERENCE: Grant No. DE-FG09-86SR15156

Dear Mr. Simpson,

A review of the accounting records for reports due shows a report was submitted on December 14, 1989 covering the period September 29, 1989. According to Amendment No. M001, the report should have covered the period through March 29, 1989. Since the report has been submitted through September 29, 1989, enclosed is an original plus one (1) copy of the Financial Status Report (SF-269) covering the period September 30, 1989 through March 29, 1990 to be in compliance with Amendments No. M002 and M003.

I apologize for the inconvenience this error in the reporting periods may have caused.

If you should have questions, please contact Geraldine Reese or me at (404) 894-2629.

Sincerely,

David V. Welch,
Director

DVW/GMR/djt

Enclosure

c: Ms. Mary Wolfe, OCA/CSD 0420
File: E-19-684/R6223-0A0

FINANCIAL STATUS REPORT
(Short Form)
(Follow instructions on the back)

1. Federal Agency and Organizational Element to Which Report is Submitted	2. Federal Grant or Other Identifying Number Assigned By Federal Agency	OMB Approval No.	Page	of
U. S. DEPARTMENT OF ENERGY	DE-FG09-86SR15156	0348-0039	1	1 pages

3. Recipient Organization (Name and complete address, including ZIP code)
GEORGIA TECH RESEARCH CORPORATION
P. O. BOX 100117
ATLANTA, GA 30384

4. Employer Identification Number	5. Recipient Account Number or Identifying Number	6. Final Report	7. Basis
58-0603146	E-19-684/R6223-0A0	☐ Yes ☒ No	☒ Cash ☐ Accrual

8. Funding/Grant Period (See instructions) From: (Month, Day, Year)	To: (Month, Day, Year)	9. Period Covered by this Report From: (Month, Day, Year)	To: (Month, Day, Year)
September 30, 1986	March 29, 1991	September 30, 1989	March 29, 1990

10. Transactions:	I Previously Reported	II This Period	III Cumulative
a. Total outlays	$35,016.66	$2,078.12	$37,094.78
b. Recipient share of outlays	-0-	-0-	-0-
c. Federal share of outlays	35,016.66	2,078.12	37,094.78
d. Total unliquidated obligations			-0-
e. Recipient share of unliquidated obligations			-0-
f. Federal share of unliquidated obligations			-0-
g. Total Federal share (Sum of lines c and f)			37,094.78
h. Total Federal funds authorized for this funding period			50,000.00
i. Unobligated balance of Federal funds (Line h minus line g)			12,905.22

Indirect Expense	a. Type of Rate (Place "X" in appropriate box) ☐ Provisional ☐ Predetermined ☐ Final ☒ Fixed			
	b. Rate	c. Base	d. Total Amount	e. Federal Share
	SEE ATTACHED	MTDC	$799.28	$799.28

Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation.

Questions pertaining to this report should be directed to: Ms. Geraldine Reese (404) 894-2629

EORGIA TECH'S FISCAL YEAR ENDS JUNE 30

Certification: I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays and unliquidated obligations are for the purposes set forth in the award documents.

ed or Printed Name and Title	Telephone (Area code, number and extension)
avid V. Welch, Director, Grants & Contracts Accounting	(404) 894-2629
ature of Authorized Certifying Official	Date Report Submitted
	November 5, 1990

ous Editions not Usable

Standard Form 269A (REV 4-88)
Prescribed by OMB Circulars A-102 and A-110

Attachment
11/05/90
U. S. Department of Energy
Financial Status Report
Grant #DE-FG09-86SR15156
Period Covered: 09/30/89 - 03/29/90

	Direct Costs	Indirect Costs
FY'87 @ 63.5% Fixed	$ 3,623.82	$ 2,301.13
FY'88 @ 60.0% Fixed	5,821.16	3,492.70
FY'89 @ 60.0% Fixed	12,344.67	7,406.79
FY'90 @ 62.5% Fixed	1,295.08	809.43

REPORT PERIOD

	Direct Costs	Indirect Costs
09/30/89 - 03/29/90	$ 1,278.84	$ 799.28

E-19-684
n/a

Georgia Tech

Office of Grants and Contracts Accounting

Georgia Institute of Technology
Hinman Building
Atlanta, Georgia 30332-0259
404•894•4624; 2629
Fax: 404•894•5519

April 17, 1991

Ronald D. Simpson
U. S. Department of Energy
Savannah River Operations Office
P. O. Box A
Aiken, SC 29802

REFERENCE: Grant No. DE-FG09-86SR15156

Dear Mr. Simpson,

Enclosed is an original plus one (1) copy of the Financial Status Report (Form SF-269) for Grant No. DE-FG09-86SR15156 covering the period March 30, 1990 through March 29, 1991.

If you have any questions or require additional information, please contact Geraldine Reese or me at (404) 894-2629.

Sincerely,

David V. Welch
Director

DVW/GMR/djt

Enclosure

cc: Ms. Mary Wolfe, OCA/CSD 0420
File E-19-684/R6223-0A0

FINANCIAL STATUS REPORT

(Short Form)

(Follow instructions on the back)

1. Federal Agency and Organizational Element to Which Report is Submitted	2. Federal Grant or Other Identifying Number Assigned By Federal Agency	OMB Approval No.	Page	of
U. S. DEPARTMENT OF ENERGY	DE-FG09-86SR15156	0348-0039	1	1 pages

3. Recipient Organization (Name and complete address, including ZIP code)

GEORGIA TECH RESEARCH CORPORATION
P. O. BOX 100117
ATLANTA, GA 30384

4. Employer Identification Number	5. Recipient Account Number or Identifying Number	6. Final Report	7. Basis
58-0603146	E-19-684/R6223-0A0	☐ Yes ☒ No	☒ Cash ☐ Accrual

8. Funding/Grant Period (See *Instructions*) From: (Month, Day, Year)	To: (Month, Day, Year)	9. Period Covered by this Report From: (Month, Day, Year)	To: (Month, Day, Year)
September 30, 1986	March 29, 1991	March 30, 1990	March 29, 1991

10 Transactions:	I Previously Reported	II This Period	III Cumulative
a. Total outlays	37,094.78	1,674.59	38,769.37
b. Recipient share of outlays	-0-	-0-	-0-
c. Federal share of outlays	37,094.78	1,674.59	38,769.37
d. Total unliquidated obligations			-0-
e. Recipient share of unliquidated obligations			-0-
f. Federal share of unliquidated obligations			-0-
g. Total Federal share *(Sum of lines c and f)*			38,769.37
h. Total Federal funds authorized for this funding period			50,000.00
i. Unobligated balance of Federal funds *(Line h minus line g)*			11,230.63

11. Indirect Expense	a. Type of Rate *(Place "X" in appropriate box)* ☐ Provisional ☐ Predetermined ☐ Final ☒ Fixed			
	b. Rate	c. Base	d. Total Amount	e. Federal Share
	SEE ATTACHED	MTDC	644.07	644.07

12. *Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation.*

Questions pertaining to this report should be directed to: Ms. Geraldine Reese (404) 894-2629

GEORGIA TECH'S FISCAL YEAR ENDS JUNE 30

13. Certification: **I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays and unliquidated obligations are for the purposes set forth in the award documents.**

Typed or Printed Name and Title	Telephone (Area code, number and extension)
David V. Welch, Director, Grants and Contracts Accounting	(404) 894-2629
Signature of Authorized Certifying Official	**Date Report Submitted**
	April 17, 1991

Attachment
04/17/91
U. S. DEPT. OF ENERGY
Financial Status Report
Grant #DE-FG09-86SR15156
Period Covering: 03/30/90 - 03/29/91

	Direct Costs	Indirect Costs
FY'87 @ 63.5% Fixed	$ 3,623.82	$ 2,301.13
FY'88 @ 60.0% Fixed	5,821.16	3,492.70
FY'89 @ 60.0% Fixed	12,344.67	7,406.79
FY'90 @ 62.5% Fixed	1,322.70	826.69
FY'91 @ 62.5% Fixed	1,002.90	626.81

REPORT PERIOD

	Direct Costs	Indirect Costs
03/30/90 - 03/29/91	$ 1,030.52	$ 644.07

E-19-684
PTA

Georgia Tech

Office of Grants and Contracts Accounting

Georgia Institute of Technology
190 Bobby Dodd Way
Atlanta, Georgia 30332-0259
USA
404•894•4624; 2629
Fax: 404•894•5519

October 20, 1993

Elizabeth T. Martin
U. S. Department of Energy
Savannah River Operations Office
P. O. Box A
Aiken, SC 29802

REFERENCE: Grant No. DE-FG09-86SR15156

Dear Ms. Martin,

Enclosed is an original plus one (1) copy of the Financial Status Report (Form SF-269A) for Grant No. DE-FG09-86SR15156 covering the period October 01, 1992 through September 30, 1993.

If you have any questions or require additional information, please contact Geraldine Reese or me at (404) 894-2629.

Sincerely,

David V. Welch
Director

DVW/GMR/djt

Enclosure

c: Ms. Wanda Simon, OCA/CSD
File: E-19-684/R6223-0A0

RECEIVED
OCT 26 1993
OFFICE OF CONTRACT ADMINISTRATION

FINANCIAL STATUS REPORT

(Short Form)

(Follow instructions on the back)

1. Federal Agency and Organizational Element to Which Report is Submitted	2. Federal Grant or Other Identifying Number Assigned By Federal Agency	OMB Approval No.	Page	of
U. S. DEPARTMENT OF ENERGY	DE-FG09-86SR15156	0348-0039	1	2 pages

3. Recipient Organization (Name and complete address, including ZIP code)

GEORGIA TECH RESEARCH CORPORATION
P. O. BOX 100117
ATLANTA, GA 30384

4. Employer Identification Number	5. Recipient Account Number or Identifying Number	6. Final Report	7. Basis
58-0603146	E-19-684/R6223-0A0	☐ Yes ☒ No	☒ Cash ☐ Accrual

8. Funding/Grant Period *(See Instructions)* From: (Month, Day, Year)	To: (Month, Day, Year)	9. Period Covered by this Report From: (Month, Day, Year)	To: (Month, Day, Year)
September 30, 1986	March 31, 1994	October 01, 1992	September 30, 1993

10. Transactions:	I Previously Reported	II This Period	III Cumulative
a. Total outlays	41,385.37	3,329.49	44,714.86
b. Recipient share of outlays	-0-	-0-	-0-
c. Federal share of outlays	41,385.37	3,329.49	44,714.86
d. Total unliquidated obligations			-0-
e. Recipient share of unliquidated obligations			-0-
f. Federal share of unliquidated obligations			-0-
g. Total Federal share *(Sum of lines c and f)*			44,714.86
h. Total Federal funds authorized for this funding period			50,000.00
i. Unobligated balance of Federal funds *(Line h minus line g)*			5,285.14

11. Indirect Expense	a. Type of Rate *(Place "X" in appropriate box)* ☒ Provisional ☐ Predetermined ☐ Final ☐ Fixed			
	b. Rate	c. Base	d. Total Amount	e. Federal Share
	SEE ATTACHED	MTDC	1,184.20	1,184.20

12. *Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation.*

Questions pertaining to this report should be directed to: Geraldine Reese (404) 894-2629

GEORGIA TECH'S FISCAL YEAR ENDS JUNE 30

13. Certification: **I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays and unliquidated obligations are for the purposes set forth in the award documents.**

Typed or Printed Name and Title	Telephone (Area code, number and extension)
David V. Welch, Director, Grants and Contracts Accounting	(404) 894-2629
Signature of Authorized Certifying Official	**Date Report Submitted**
	October 20, 1993

Attachment

U. S. DEPARTMENT OF ENERGY
FINANCIAL STATUS REPORT (10/20/93)
GRANT NO. DE-FG09-86SR15156 (E-19-684/R6223-0A0)
Period Covering: 10/01/92 - 09/30/93

	Direct Costs	Indirect Costs
FY87 @ 63.5% Fixed	$ 3,623.82	$ 2,301.13
FY88 @ 60.0% Fixed	5,821.16	3,492.70
FY89 @ 60.0% Fixed	12,344.67	7,406.79
FY90 @ 62.5% Fixed	1,322.70	826.69
FY91 @ 62.5% Fixed	1,002.90	626.81
FY92 @ 61.5% Fixed	1,619.81	996.19
FY93 @ 55.2% Provisional	2,145.29	1,184.20
FY94 @ 37.0% Provisional		

REPORT PERIOD

	Direct Costs	Indirect Costs
10/01/92 - 06/30/93	$ 2,145.29	$ 1,184.20
07/01/93 - 09/30/93	-0-	-0-

E-19-684
N/A

Georgia Tech

Office of Grants and Contracts Accounting

Georgia Institute of Technology
190 Bobby Dodd Way
Atlanta, Georgia 30332-0259
USA
404•894•4624; 2629
Fax: 404•894•5519

October 27, 1994

Elizabeth T. Martin
U. S. Department of Energy
Savannah River Operations Office
P. O. Box A
Aiken, SC 29802

REFERENCE: Grant No. DE-FG09-86SR15156

Dear Ms. Martin,

Enclosed is an original plus one (1) copy of the Financial Status Report (Form SF-269A) for Grant No. DE-FG09-86SR15156 covering the period October 01, 1993 through September 30, 1994.

If you have any questions or require additional information, please contact Geraldine Reese or me at (404) 894-2629.

Sincerely,

David V. Welch
Director

DVW/GMR/djt

Enclosure

c: Ms. Wanda Simon, OCA/CSD 0420
File: E-19-684/R6223-0A0

FINANCIAL STATUS REPORT

(Short Form)

(Follow instructions on the back)

1. Federal Agency and Organizational Element to Which Report is Submitted	2. Federal Grant or Other Identifying Number Assigned By Federal Agency	OMB Approval No.	Page	of
U. S. DEPARTMENT OF ENERGY	DE-FG09-86SR15156	0348-0039	1	2 pages

3. Recipient Organization (Name and complete address, including ZIP code)
GEORGIA TECH RESEARCH CORPORATION
400 10TH STREET, N.W., ROOM 270
ATLANTA, GA 30332-0415

4. Employer Identification Number	5. Recipient Account Number or Identifying Number	6. Final Report	7. Basis
58-0603146	E-19-684/R6223-0A0	☐ Yes ☒ No	☒ Cash ☐ Accrual

8. Funding/Grant Period *(See Instructions)* From: (Month, Day, Year)	To: (Month, Day, Year)	9. Period Covered by this Report From: (Month, Day, Year)	To: (Month, Day, Year)
September 30, 1986	September 30, 1995	October 01, 1993	September 30, 1994

10. Transactions:	I Previously Reported	II This Period	III Cumulative
a. Total outlays	44,714.86	1,175.58	45,890.44
b. Recipient share of outlays	-0-	-0-	-0-
c. Federal share of outlays	44,714.86	1,175.58	45,890.44
d. Total unliquidated obligations			520.93
e. Recipient share of unliquidated obligations			-0-
f. Federal share of unliquidated obligations			520.93
g. Total Federal share *(Sum of lines c and f)*			46,411.37
h. Total Federal funds authorized for this funding period			50,000.00
i. Unobligated balance of Federal funds *(Line h minus line g)*			3,588.63

11. Indirect Expense	a. Type of Rate *(Place "X" in appropriate box)* ☒ Provisional ☐ Predetermined ☐ Final ☐ Fixed			
	b. Rate	c. Base	d. Total Amount	e. Federal Share
	SEE ATTACHED	MTDC	317.49	317.49

12. *Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation.*

Questions concerning this report should be directed to: Geraldine Reese (404) 894-2629

GEORGIA TECH'S FISCAL YEAR ENDS JUNE 30

13. Certification: **I certify to the best of my knowledge and belief that this report is correct and complete ar i that all outlays and unliquidated obligations are for the purposes set forth in the award documents.**

Typed or Printed Name and Title	Telephone (Area code, number and extension)
David V. Welch, Director, Grants and Contracts Accounting	(404) 894-2629
Signature of Authorized Certifying Official	**Date Report Submitted**
	October 27, 1994

Attachment

U. S. Department of Energy
Grant No. DE-FG09-86SR15156 (E-19-684/R6223-0A0)
Financial Status Report (10/27/94)
Period Covering: 10/01/93 - 09/30/94

	Direct Costs	Indirect Costs
FY87 @ 63.5% Fixed	$ 3,623.82	$ 2,301.13
FY88 @ 60.0% Fixed	5,821.16	3,492.70
FY89 @ 60.0% Fixe	12,344.67	7,406.79
FY90 @ 62.5% Fixed	1,322.70	826.69
FY91 @ 62.5% Fixed	1,002.90	626.81
FY92 @ 61.5% Fixed	1,619.81	996.19
FY93 @ 55.2% Provisional	2,145.29	1,184.20
FY94 @ 37.0% Provisional	858.09	317.49
FY95 @ 40.0% Provisional	-0-	-0-

REPORT PERIOD

	Direct Costs	Indirect Costs
10/01/93 - 06/30/94	$ 858.09	$ 317.49
07/01/94 - 09/30/94	-0-	-0-

E-19-684
N/a

Georgia Tech

Office of Grants and Contracts Accounting

Georgia Institute of Technology
190 Bobby Dodd Way
Atlanta, Georgia 30332-0259
USA
404•894•4624; 2629
Fax: 404•894•5519

October 18, 1995

Elizabeth T. Martin
U. S. Department of Energy
Savannah River Operations Office
P. O. Box A
Aiken, SC 29802

REFERENCE: Grant No. DE-FG09-86SR15156

Dear Ms. Martin,

Enclosed is an original plus one (1) copy of the Financial Status Report (Form SF-269A) for Grant No. DE-FG09-86SR15156 covering the period October 01, 1994 through September 30, 1995.

If you have any questions or require additional information, please contact Geraldine Reese or me at (404) 894-2629.

Sincerely,

David V. Welch
Director

DVW/GMR/djt

Enclosure

c: Ms. Wanda Simon, OCA/CSD 0420
File: E-19-684/R6223-0A0

FINANCIAL STATUS REPORT

(Short Form)

(Follow instructions on the back)

1. Federal Agency and Organizational Element to Which Report is Submitted	2. Federal Grant or Other Identifying Number Assigned By Federal Agency	OMB Approval No.	Page	of
U. S. DEPARTMENT OF ENERGY	DE-FG09-86SR15156	0348-0039	1	2 pages

3. Recipient Organization (Name and complete address, including ZIP code)

GEORGIA TECH RESEARCH CORPORATION
400 10TH SGREET, N.W. - ROOM 270
ATLANTA, GA 30332-0415

4. Employer Identification Number	5. Recipient Account Number or Identifying Number	6. Final Report	7. Basis
58-0603146	E-19-684/R6223-0A0	☐ Yes ☒ No	☒ Cash ☐ Accrual

8. Funding/Grant Period (See Instructions) From: (Month, Day, Year)	To: (Month, Day, Year)	9. Period Covered by this Report From: (Month, Day, Year)	To: (Month, Day, Year)
September 30, 1986	September 30, 1995	October 01, 1994	September 30, 1995

10. Transactions:	I Previously Reported	II This Period	III Cumulative
a. Total outlays	45,890.44	4,109.56	50,000.00
b. Recipient share of outlays	-0-	-0-	-0-
c. Federal share of outlays	45,890.44	4,109.56	50,000.00
d. Total unliquidated obligations			-0-
e. Recipient share of unliquidated obligations			-0-
f. Federal share of unliquidated obligations			-0-
g. Total Federal share *(Sum of lines c and f)*			50,000.00
h. Total Federal funds authorized for this funding period			50,000.00
i. Unobligated balance of Federal funds *(Line h minus line g)*			-0-

11. Indirect Expense	a. Type of Rate *(Place "X" in appropriate box)* ☒ Provisional ☐ Predetermined ☐ Final ☐ Fixed			
	b. Rate	c. Base	d. Total Amount	e. Federal Share
	SEE ATTACHED	MTDC	1,235.73	1,235.73

12. *Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation.*

Questions concerning this report should be directed to: Geraldine Reese (404) 894-2629

GEORGIA TECH'S FISCAL YEAR ENDS JUNE 30

13. Certification: **I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays and unliquidated obligations are for the purposes set forth in the award documents.**

Typed or Printed Name and Title	Telephone (Area code, number and extension)
David V. Welch, Director, Grants and Contracts Accounting	(404) 894-2629
Signature of Authorized Certifying Official	**Date Report Submitted**
	October 18, 1995

Attachment

U. S. Department of Energy
Grant No. DE-FG09-86SR15156 (E-19-684/R6223-0A0)
Financial Status Report (10/18/95)
Period Covering: 10/01/94 - 09/30/95

	Direct Costs	Indirect Costs
FY87 @ 63.5% Fixed	$ 3,623.82	$ 2,301.13
FY88 @ 60.0% Fixed	5,821.16	3,492.70
FY89 @ 60.0% Fixe	12,344.67	7,406.79
FY90 @ 62.5% Fixed	1,322.70	826.69
FY91 @ 62.5% Fixed	1,002.90	626.81
FY92 @ 61.5% Fixed	1,619.81	996.19
FY93 @ 55.2% Provisional	2,145.29	1,184.20
FY94 @ 37.0% Provisional	858.09	317.49
FY95 @ 40.0% Provisional	.78	.32
FY96 @ 43.0% Provisional	2,873.05	1,235.41

REPORT PERIOD

	Direct Costs	Indirect Costs
10/01/94 - 06/30/95	$ .78	$ .32
07/01/95 - 09/30/95	2,873.05	1,235.41